MENTAL RETARDATION ABSTRACTS

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TABLE OF CONTENTS

ABSTRACTS 1
BROAD ASPECTS OF MENTAL RETARDATION 1
MEDICAL ASPECTS 12
Diagnosis(General) 12
Prevention and Etiology (General) 15
Etiologic Groupings 21
Infections, intoxication, and hemolytic disorders 21
Trauma or physical agents 38
Disease or disorders of metabolism, growth, or nutrition 43
New growths 56
Prenatal influence 57
Gross brain disease (postnatal) 68
Psycho-environmental 70
Convulsive disorders 74
Chromosomal 75
Miscellany 89
DEVELOPMENTAL ASPECTS 92
Physical 92
Mental 94
Social and Emotional 107
Psychodiagnostics 111
TREATMENT AND TRAINING ASPECTS 117
Educational 117
Psycho-social 136
Occupational 140
Therapy 148
PROGRAMMATIC ASPECTS 152
Planning and Legislative 152
Community 157
Residential 165
Recreational 173
FAMILY 176
PERSONNEL 181
AUTHOR INDEX 186
SUBJECT INDEX 196

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Acta Neuropathologica
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American Journal of Sociology
American Sociological Review
Biologia Neonatorum
British Journal of Psychology
British Journal of Social & Clinical Psychology
British Medical Journal
California Mental Health Research Digest
Canadian Medical Association Journal
Child Development
Developmental Medicine & Child Neurology
Dissertation Abstracts
Education and Training of Mentally Retarded
German Medical Monthly
Helvetica Paediatrica Acta
International Journal of Neuropsychiatry
Journal of Applied Behavior Analysis
Journal of Clinical Endrocrinology and Metabolism
Journal of Comparative and Physiological Psychology
Journal of Consulting and Clinical Psychology
Journal of Educational Psychology
Journal of Experimental Psychology
Journal of Medical Genetics
Journal of the American Medical Association
Journal of the Experimental Analysis of Behavior
Lancet
New England Journal of Medicine
Nursing Research
Panminerva Medica
Perceptual and Motor Skills
Psychological Bulletin
Psychological Monographs
Psychological Record
Psychological Reports
Psychological Review
Rehabilitation Counseling Bulletin
Rehabilitation Literature
Science
Training School Bulletin

NOTE: Publications scanned regularly for articles pertinent to mental retardation will be listed in the final issue of this volume.

BROAD ASPECTS OF MENTAL RETARDATION

1 ELLIS, NORMAN R., ed. *International Review of Research in Mental Retardation: Volume 3.* New York, New York, Academic Press, 1968, 288 p. $11.50.

Theory and research developments on factors which affect learning in MRs are presented for the specific areas of incentive motivation, lateral and choice-sequence preference development, developmental trends in verbal learning and memory, short-term memory, and reaction time. Experiments which use fading techniques to develop left-right concepts are described and evaluated, and educational research in MR is surveyed. A general overview of attitudes toward the MR in India and descriptions of care, training, research, and rehabilitation programs are included. Needs for developmental data on MR learning, attention to individual differences, and process rather than comparative learning studies are emphasized. The Hull-Spence theory seems to explain experimental findings on motivation better than other theories. Major theories on short-term memory cannot be confirmed or discounted by presently available data. Reaction time seems to be a sensitive and reliable method for the investigation of the effects of environment on the functioning of MRs, and the fading-in technique may prove to be an effective means of developing left-right conceptual abilities in the MR. Since the focus of current educational research designs in MR are of little value for educational practitioners, research emphases should be directed toward discovering applicable data. This book would be of interest to educators, special educators, psychologists, and institution administrators. (551 refs.) - *J. K. Wyatt.*

CONTENTS: Incentive Motivation in the Mental Retardate (Siegel); Development of Lateral and Choice-Sequence Preferences (Gerjuoy & Winters); Studies in the Experimental Development of Left-Right Concepts in Retarded Children Using Fading Techniques (Bijou); Verbal Learning and Memory Research with Retardates: An Attempt to Assess Developmental Trends (Goulet); Research and Theory in Short-Term Memory (Scott & Scott); Reaction Time and Mental Retardation (Baumeister & Kellas); Mental Retardation in India: A Review of Care, Training, Research, and Rehabilitation Programs (Das); Educational Research in Mental Retardation (Guskin & Spicker).

2 ELLIS, NORMAN R., ed. *International Review of Research in Mental Retardation: Volume 4.* New York, New York, Academic Press, 1970, 392 p. $11.50.

The contents of this fourth volume encompass a wide variety of topics relating to research in MR including memory function, audiology, testing, social psychology, animal research, intelligence, learning, as well as a theoretical conception of 2 behavioral types of retardation. A primary goal is to present current data on behavioral research and theory in applied as well as basic areas of psychology. Reviews, documented research, and theories focus on human and animal behavior with major implications for the MR and his problems. Data relating to the memory process show that it is crucial in the development of intelligent behavior and that MRs have problems with rehearsal strategy. The concept of primary and secondary familial MR allows educators to consider differentiation in teaching methods to include both associative ability and cognitive abilities. Several inhibition deficits in the learning of the MR are shown in encoding, rigidity, abstraction, and stimulus and response inhibitions. A semi-longitudinal study of the growth and decline of MR intelligence shows that a single equation explains the spontaneous growth and decline of MR intelligence (MA) at all levels. Analysis of 3 major psychological evaluation scales indicates that alternative approaches may be needed to provide supplemental data. There is no real social psychology of MR, but genetics, ability level, and demands of society are of concern to those working with social relations of the MR. Animal experimentation is hampered by a "dilemma of conceptualization" in the difficulty in describing the phenomena to be studied; however,

there has been progress in this field of comparative research on MR. Audiological research considers methodological concerns and incidence of hearing impairment as crucial factors but has not given sufficient concern to rehabilitation of the hearing -impaired MR. This book should be of interest to psychologists, researchers, and educators. (891 refs.) - *B. Bradley.*

CONTENTS: Memory Processes in Retardates and Normals (Ellis); A Theory of Primary and Secondary Familial Mental Retardation (Jensen); Inhibition Deficits in Retardate Learning and Attention (Heal & Johnson, Jr.); Growth and Decline of Retardate Intelligence (Fisher & Zeaman); The Measurement of Intelligence (Silverstein); Social Psychology and Mental Retardation (Wilson); Mental Retardation in Animals (Meier); Audiologic Aspects of Mental Retardation (Lloyd).

3 WORTIS, JOSEPH, ed. *Mental Retardation: An Annual Review--Volume I.* New York, New York, Grune & Stratton, 1970, 321 p. $20.00.

Important recent developments in research and services in the field of MR are considered. Papers on psychology include reports on developmental and comparative psychology and a review of research on conditioning and learning which is related to the specific problems of MR. High prevalence rates for MR are associated with low social class. New developments in clinical provisions for the MR, genetic findings, and metabolic studies, and the history and present state of knowledge about Down's syndrome are discussed. MR has been associated with deviations in almost every area of metabolism. A review of the neurology of MR considers nosological categories and clinical syndromes and contains tables of congenital malformations, chromosomal anomalies, vitamin deficiencies, obscure etiologies, aminoacidurias, and disorders of lipid, carbohydrate, purine, pyrimidine, and folate metabolism. Research on brain-behavior relations is gradually being applied to the field of MR. Reports on community services in the United States and foreign countries indicate that, although services have greatly increased in recent years, additional services are needed. The problems of the American Association on Mental Deficiency Classification are discussed, and suggestions for changes are reviewed. The relation between MR and specific social and bio-social factors is considered, and low birth-weight is associated with poverty. This book should be of interest to psychologists, neurologists, neuropathologists, pediatricians, nurses, psychiatrists, attorneys, hospital administrators, and legislators. (1,952 refs.) - *J. K. Wyatt.*

CONTENTS: Developmental Psychology (Klapper); Comparative Psychology (Turkewitz & Birch); Conditioning and Learning (Sersen); Clinical Aspects (Kirman); Down's Syndrome (Kirman); Neurology (Voeller); Neuropathology (Jervis); Neurophysiology (Ellingson); Metabolism (Snyderman); Epidemiology (Lapouse & Weitzner); Community Organization: Foreign Countries (Dybwad & Dybwad); Community Organization: U. S. A. (Lippman); Legal Aspects (Jacobs); Poverty and Retardation: Social Aspects (Wortis); Poverty and Retardation: Biosocial Factors (Wortis); Complications of Pregnancy and Delivery (Drillien); Terminology and Classification (Sanders).

4 KLAPPER, ZELDA S. Developmental psychology. In: Wortis, Joseph, ed. *Mental Retardation: An Annual Review--Volume I.* New York, New York, Grune & Stratton, 1970, p. 1-13.

For the past 20 years, the focus of developmental psychology research has been on improving the understanding and servicing of the growth patterns and needs of the MR. The new human-effectiveness orientation toward MR represents a move away from the low-level-of-intelligence concept of early child psychology; it emphasizes the identification, use, development, and creation of limited assets. A research approach which deals directly with the identifiable characteristics of the experimental situation that appear to effect the nature of the response has been a more productive means of relating adaptive behavior to chronological age than the normative approach. Data from this research provide an increased understanding of the processes involved in adaptive behavior and can be applied to the development of a plan for optimizing cognitive development. Behavioral mechanisms in perceptual learning which have been investigated include intersensory relations, discrimination learning, inhibition deficits, language, and short-term memory deficits. Research on environmental and motivational determinants in the functioning of MRs has been marked. Among the findings in this area are the critical importance of early experiences in child development, the need for the manipulation of motivational, social, and emotional factors in studies directed toward raising intellectual competence, and the importance of evaluating history of social deprivation and stigmatization as well as the intelligence quotient. (76 refs.) - *J. K. Wyatt.*

5 TURKEWITZ, GERALD; & BIRCH, HERBERT G. Comparative psychology. In: Wortis, Joseph, ed. *Mental Retardation: An Annual Review--Volume I.* New York, New York, Grune & Stratton, 1970, p. 14-27.

Common concerns of MR and comparative psychology are the identification of the mechanisms which underly behavior, an understanding of factors related to the development of competence in dealing with the demands of the environment, and the strategies and techniques which produce behavior modification. Studies of the mechanisms of behavior in man and animals indicate that behavior is organized on a number of qualitatively different levels and that each higher level of organization depends on the achievement of lower levels of organization. However, higher levels cannot be directly assumed from knowledge of lower levels. Since a variety of known processes can result in similar or dissimilar behavior, it cannot be inferred that equivalent degrees of disturbance of performance reflect similar levels or organization. Deficit in intellectual functioning can result from genetic and nutritional deficits as well as from social conditions. Since the majority of these conditions can be corrected, their identification may result in the prevention of functional disorders. The systematic application of behavior modification techniques may prove useful in the teaching and training of MRs. MR children may have either differential sensitivities or atypical hierarchies; therefore, they may require training conditions that eliminate excessive stimuli. (101 refs.) - *J. K. Wyatt.*

6 VOELLER, KYTJA. Neurology. In: Wortis, Joseph, ed. *Mental Retardation: An Annual Review--Volume I.* New York, New York, Grune and Stratton, 1970, p. 75-151.

The neurology of MR is concerned with the types of brain deficits (such as visual and auditory difficulties), neurochemical, neuropathological and genetic bases of MR (such as lipidoses and chromosomal aberrations), and ontogeny of the brain. The nosological categories of MR include congenital malformations, chromosomal anomalies, metabolic disorders, and abnormalities associated with carbohydrate, vitamin, and nucleic acid base metabolism. Nevertheless, there remains a large group of syndromes associated MR which have an obscure etiology; these include some types of dwarfism, muscle disorders, and sudanophilic leukodystrophies. Absence of the Moro reflex, absence of opticokinetic response (OKN), and abnormal suckling behavior in neonates are indicative of neurological dysfunctions. Fetal anoxia is related to subsequent cerebral dysfunction. These children at 7 years of age have poorer performances on the perceptual-motor tests than normals, and they often are unable to perform abstract thinking. Hyperbilirubinemia and kernicterus during the neonatal period are associated with poor motor and mental functions by 8 months of age; however, the Stanford-Binet IQ is usually not affected at 5 years of age. Prematurity, malnutrition, and postnatal environment can also affect normal brain development. School age children with learning disabilities are characterized by hyperactivity, distractability, and perceptual problems with no striking neurological abnormalities. Abnormal dermatoglyphics, brain biopsies, rectal biopsies, and EEGs are useful techniques for diagnosing MR. (673 refs.) - *L. S. Ho.*

7 JERVIS, GEORGE A. Neuropathology. In: Wortis, Joseph, ed. *Mental Retardation: An Annual Review--Volume I.* New York, New York, Grune and Stratton, 1970, p. 152-163.

Neuropathological aspects of MR are discussed with respect to malformations of the brain, clinico-pathological entities, lipidoses, demyelination and metabolic disorders, and infectious destructive processes of the brain. Agenesis of the corpus callosum may represent an arrest of embryological development; however, this condition has been found among individuals with normal intelligence. MR due to chromosomal anomalies is often associated with brain malformations including microcephaly in Down's syndrome, cerebellar changes in trisomic syndromes, reduction of brain size in *cri-du-chat* syndrome, and holoprosencephaly in D-trisomy. Pachgyria in a MR boy and a peculiar driftwood appearance of neocortex in a MR girl have also been reported. Clinico-pathological syndromes with MR include tubero-sclerosis, ataxia telangiectasia, Cockayne's syndrome, Hallervorden-Spatz disease, Alexander's disease, neuroaxonal dystrophy, Alper's disease, Rubinstein-Taybi syndrome, and myoclonic epilepsy. In addition to the 5 classical types of amaurotic idiocies (congenital, infantile, late infantile, juvenile, and adult), new forms of lipid storage disorders have been found including systemic gangliosidosis, Wolman's disease, cholesterinosis of the brain, and dystonic juvenile idiocy. Disorders of carbohydrate and amino acid metabolism also cause pathological changes in the brain. Measles encephalitis, herpes virus infection, and subacute sclerosing panencephalitis are known to cause brain lesions which result in MR. The role of nutritional deficiency in causing MR

is less clear with the exception of thiamine deficiency which produces necrotizing encephalomyelopathy. Electron microscopy is a valuable technique for studying the ultrastructural abnormalities of the brain and should make important contributions to the future knowledge of MR. (76 refs.) - *L. S. Ho.*

8 ELLINGSON, ROBERT J. Neurophysiology. In: Wortis, Joseph, ed. *Mental Retardation: An Annual Review--Volume I.* New York, New York, Grune and Stratton, 1970, p. 164-177.

Neurophysiology of MR has evolved in areas of neurophysiological techniques (EEG and evoked responses) for diagnosis of MR, neurophysiological effects of adverse environmental conditions, and the relation between behavior and the physiological processes of the brain. Some differences in sleep patterns are found between MRs and normals; the percentages of of total sleep time occupied by stage 2 and the REM (rapid-eye-movement) stage are less in MRs, the amount of σ activity (sleep spindles) is less in MRs, there is an indeterminate sleep stage in MRs in which EEGs are of low voltage and muscular and ocular movements are absent. The development of σ activity is retarded in hypothyroid infants. In mongoloids, the non-REM sleep is longer, the episodic sleep activity is less clearly defined, and the transition periods between the episodic patterns and the slow-wave patterns are prolonged. Diagnostic use of EEG-sleep patterns is limited by the fact that EEGs are very time consuming to obtain. A more successful clinical technique is the auditory evoked response. The use of audiograms in MRs and other types of uncommunicative patients is solidly established. Visually evoked responses are useful in assessing lesions in the visual projection system. The limitation of EEG and evoked response techniques can not be overlooked since normal patterns can exist in the presence of brain damage and dysfunction. Studies of environmental effects, isolation, sensory deprivation, and malnutrition are limited to animals. Alpha blocking associated with attentional processes seems to be shorter in MRs than in normals; however, attempts to relate IQ to EEG variables have been unsuccessful. (105 refs.) - *L. S. Ho.*

9 DAS, J. P. Mental retardation in India: A review of care, training, research, and rehabilitation programs. In: Ellis, Norman R., ed. *International Review of Research in Mental Retardation; Volume 3.* New York, New York, Academic Press, 1968, p. 195-216.

Factors in India which have impeded the progress of work in MR include preoccupation with problems of national reconstruction since independence, the unpopularity of medical care and education for the MR, a lack of demand for facilities, and the barriers to standardized intelligence testing presented by the variety of languages and dialects used in the country. Good schools have been established in highly industrialized cities, awareness of the need for training and education for the MR is beginning to develop in urban areas, and the federal government is beginning to take an interest in the MR. Institutions for the MR have both residential and day programs. They are funded primarily by public donations, although they do receive some assistance from state and federal governments. The work program of institutions includes diagnostic services, parent counseling, scholastic education, extracurricular and recreational activities, clinics, teacher training, occupational training, and vocational rehabilitation. Surveys of the incidence of MR have been completed in 2 cities, and there has been one major survey on the effects of a rehabilitation project. Psychological and educational research has been minimal. Medical research has included surveys on the incidence of PKU, an analysis of MRs referred to a neurological outpatient clinic, and projects on the effects of nutritional deficiency. Future projects could focus on the effects of caste, cultural deprivation, and boredom on cognitive function. Potential agencies for conducting federally-sponsored research on MR are the Department of Psychological Foundations and the Special Education Unit. (21 refs.) - *J. K. Wyatt.*

10 SCHEERENBERGER, RICHARD C., ed. *Mental Retardation: Selected Conference Papers.* Springfield, Illinois, Mental Health Department, 1969, 216 p.

These 32 papers were selected from recent conferences which were conducted in Illinois on the needs of MRs. A broad spectrum of services and programs which include diagnostic clinics, day centers, residential facilities, religious organizations, and generic agencies are discussed. Areas considered

include diagnosis and evaluation, training programs for moderately, severely, and profoundly MR, supportive services, and program planning. This book should be of interest to physicians, pediatricians, psychologists, psychiatrists, social workers, educators, special educators, art and music teachers, speech therapists, audiologists, recreation specialists, physical educators and therapists, nurses, and directors of programs for the MR. (144 refs.) - *J. K. Wyatt.*

CONTENTS: Diagnosis and Evaluation; Training Programs for the Moderately, Severely, and Profoundly Retarded; Supportive Services; Program Planning.

11 SHEPHERD, MICHAEL; & DAVIES, D. L., eds. *Studies in Psychiatry.* London, England, Oxford University Press, 1968, 345 p. $7.80.

A survey of the work carried out in the Department of Psychiatry of the Institute of Psychiatry of the University of London under the chairmanship of Sir Aubrey Lewis from 1945 to 1966 is presented. Areas of psychiatric research covered by the principal investigators include the psychosocial and biological sciences and concepts of education in psychiatry. One significant accomplishment was the introduction of MR as a proper subject of scientific investigation and clinical study. Work scattered throughout the literature is brought together to emphasize the scope and diversity of research originating within a single department and to pay tribute to the man who laid the foundations of academic psychiatry in Great Britain. (762 refs.) - *E. L. Rowan.*

CONTENTS: Social Treatments of Mental Illness (Wing); Social Attitudes and Psychiatric Epidemiology (Rawnsley); Social Psychiatry and Mental Subnormality (Tizard); Psychology and Intelligence (O'Connor); Experimental Psychological Studies of Chronic Schizophrenia (Venables); Psychological Treatments (Gelder); Forensic Psychiatry (Gibbens); Child Psychiatry (Rutter) Psychiatric Genetics (Shields); Psychiatric Education and Training (Davies); Sensorimotor Physiology (Rashbass); Research Conducted in the Metabolic Unit, 1956-1966 (Russell); Pharmacological Studies (Marley); Cerebral Amine Functions in Health and Diseases (Dewhurst); Neuroendocrine Studies on Instinctual Behavior (Michael).

12 TIZARD, JACK. Social psychiatry and mental subnormality. In: Shepherd, Michael; & Davies, D. L., eds. *Studies in Psychiatry.* London, England, Oxford University Press, 1968, Chapter 3, p. 50-64.

Beginning in 1948, the Medical Research Council Unit of the Institute of Psychiatry at Maudsley Hospital began to apply the research techniques of social psychiatry to the problem of MR. In-hospital surveys revealed a surprisingly large proportion of "feeble-minded" patients (IQ > 50) and imbeciles (IQ 20-50) who could be educated and rehabilitated and who could live productive lives outside the hospital. Epidemiological studies showed the prevalence of SMR (IQ < 50) to be 3.61/1,000 in England and Wales, and this figure could be used in program planning. Family surveys indicated desires to care for MR children at home and a need for increased community services. Experiments in child management practices in institutions revealed that a "child-centered" approach resulted in optimal development. Further epidemiological and experimental research must be done on a larger scale as practical programs are built upon the knowledge already acquired. (27 refs.) - *E. L. Rowan.*

13 CHESS, STELLA; & THOMAS, ALEXANDER, eds. *Annual Progress in Child Psychiatry and Child Development--1969.* Brunner/Mazel, New York, New York, 1969, 565 p., $15.00.

This second volume of a yearly series includes reprints of 38 articles in the areas of child psychiatry and child development which were originally published in English-language professional journals during 1968. Articles were chosen to represent concise reviews of important areas, original contributions, and discussions of the increasingly important social issues affecting work with children. Studies in infancy, cognition, and language development reflect the developmental approach while the areas of social pathology, childhood psychoses, clinical psychiatry, MR, adolescence, and treatment are clinically oriented. This volume contains many important articles which should be of interest to the clinician or researcher who works with normal or disturbed children and provides up-to-date literature to the individual too busy to survey the original

publications on his own. (1,363 refs.)
E. L. Rowan.

CONTENTS: Infancy Studies; The Learning Process; Language Studies; The Impact of Social Pathology; Mental Retardation; Childhood Psychosis; Clinical Psychiatry; Problems of Adolescence; Treatment.

14 LOVE, HAROLD D. Historical survey of mental retardation. In: Love, Harold D., ed. *Teaching the Educable Mentally Retarded.* Berkeley, California, McCutchan, 1968, Chapter 3, p. 63-77.

No attempts were made to teach or educate the MR until the latter part of the eighteenth century. The first attempt to base the training of the handicapped on the development of the senses was by Pereire and greatly influenced early educational methods for MR children. Itard demonstrated the effectiveness of training for the SMR and the effects of individual instruction, a systematic learning program, and motivation and reward. The methods of Seguin and Montessori were based on muscle and sense training and emphasized the training of the whole child. Howe founded the first state-supported institution for the handicapped in the United States in 1832, and by 1917 all but 4 states maintained state institutions. Binet produced a concrete and reliable method of evaluating intellectual ability. Special classes in public schools began in France in 1850. Classes in the United States increased from 1915 to 1930, decreased from 1930 to 1940, and evidenced remarkable growth after 1950. However, only 1/2 of the school districts now offer special classes. The National Association for Retarded Children is a parent organization which fosters public services for the MR; its impact on the field of MR has resulted in legislation, funds, research, and services as well as increased national awareness of the extent and causes of MR. Professional organizations in the field of MR include the American Association on Mental Deficiency and the Council for Exceptional Children. President Kennedy initiated Federal legislation which provides for many additional services and programs for the MR as well as projects designed to prevent MR. (No refs.)
J. K. Wyatt.

15 LOVE, HAROLD D. Overview of the mentally retarded. In: Love, Harold D., ed. *Teaching the Educable Mentally Retarded.* Berkeley, California, McCutchan, 1968, Chapter 1, p. 1-41.

The local community appears to be the best place for the treatment and training of MRs, and 95% of the estimated 6 million MRs in the United States live in local communities. The cause of 75 to 85% of MR is due to incompletely understood psychological, environmental, and genetic factors without apparent brain injury. Clinical types of MR include mongolism, microcephaly, hydrocephalus, and cretinism. Among the physiological disturbances associated with MR are infectious diseases, phenylketonuria, and rubella; and MR is also a common characteristic in endocrine disorders. Goals for teaching EMRs are not greatly different from those for normal children. School enrollment and the number of school systems providing special education programs for EMRs have increased markedly in recent years. Since many MR adults are employed in unskilled, semiskilled, or service types of employment, secondary schools should provide general vocational training. MR could be considerably reduced if adequate health services were provided for medically indigent mothers, family planning services were available, and slums were eliminated. All states now have written plans for the provision of comprehensive services for MRs, and successful state actions have increased the prevention and treatment of conditions which can lead to MR. The effects of the increasing sophistication and complexity of American life and of automation on the MR need to be investigated. Immediate action needs to be taken to: assure early identification and treatment of the MR; prepare students for health, social service, and teaching careers; and increase the major attention of social service agencies on measures that will reduce the impact of MR. (24-item bibliog.)
J. K. Wyatt.

16 ROUCEK, JOSEPH S., ed. *The Slow Learner.* New York, New York, Philosophical Library, 1969, 373p. $10.00.

This book presents a systematic attempt to pinpoint the problems of slow learners by describing their physical and social backgrounds, their needs, the effects of present school practices, and present attempts toward and future possibilities for reform. The concept of slowness rather than learning has been the focus of recent investigations into the problems of the slow learner. Obstacles

to learning can arise from lack of motivation, social and economic background, racial deprivation, and language deficit. Currently used and/or innovative programs in English, social studies, science, mathematics, reading, and spelling are described. The importance of preschool intervention programs is emphasized as well as the potential effectiveness of programed instructional methods. The role of the school counselor in relation to the slow learner and programing for the slow learner are discussed, and the problems of the ungifted and the school dropout are considered. This book should be of interest to educators, special educators, school administrators, social workers, psychologists, and psychiatrists. (529-item selected bibliog.) *J. K. Wyatt.*

CONTENTS: The Slow Learner's Concepts' Contribution to Education (Apostle); Physical Defects and Learning Abilities (Alesevich); The Socially Unmotivated (Hulicka); The Slow Gifted Child: Causes of Underachievement and Its Correction (Spragens); Social and Economic Background As an Obstacle to Learning (Davis & Demos); The Racially Deprived Child (Belok); Special Problems of Black Children and Youth (Hurst); School Counseling for the Slow Learner (Pickle); English for Slow Learners (Shehan); Teaching Social Studies to the Slow Learners (Frerichs); Science Teaching and the Slow Learner (Lange & Jorgensen); Mathematics and the Slow Learner (Bardis); Head Start and Other Pre-School Enrichment Programs (Young); Programed Instruction and the Slow Learner (Saettler); Stimulating the Retarded Reader (Claudel); The Poor Speller and Reader (Tauber & Golden); The Ungifted: Their Limitations and Horizons (Winthrop); Causes of Dropouts and Lapses in Study (Gerdy).

17 EYMAN, RICHARD K. Use and construction of data banks in mental retardation: Second report of the AAMD Ad Hoc Committee. *American Journal of Mental Deficiency*, 74(3): 441-447, 1969.

A questionnaire about the availability and processability of data was mailed to 463 state institutions and agencies; 214 were returned, and of these, 129 reported that some data were available, but that computer processing equipment was much less common. Most of the institutions and agencies that responded were interested in cooperative research, but with certain conditions attached such as confidentiality, written consent of parent or guardian, State Department approval, and the use of professional personnel. For this research, data were thought to be easily available, although there was some misunderstanding as to what constitutes processable data. In the East, 9 of 11 states are either collecting or plan to collect data banks; in the South, 13 of 15 states have data bank programs in operation or planned for the future. Nine of 11 Midwest states have operational or future plans for data banks, and all 13 Western states have operational data banks. The third meeting of the AAMD Ad Hoc Committee recommended standarization of data, coordinated research, coordinated data banks, the inclusion of the Association of State Program Directors and Coordinators in future plans, and the formation of a users' group. (3 refs.) - *M. D. Nutt.*

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18 SANDERS, CHRISTOPHER. Terminology and classification. In: Wortis, Joseph, ed. *Mental Retardation: An Annual Review--Volume I*. New York, New York, Grune and Stratton, 1970, p. 298-303.

Although the American Association on Mental Deficiency (AAMD) classification assumes that the MR can be differentiated into mutually exclusive groups, this assumption is not satisfied by either the medical or behavioral classification. The medical classification, which allows only one etiological factor, should be changed to allow for multiple diagnosis because multiple etiological factors and overlapping conditions are suggested in many case histories. The present system generates a large number of cases of unknown or presumed causes. Categories for metabolic disorders, hormonal changes, chromosomal anomalies, and psychiatric symptoms should be provided. The labels of categories IV, VI, VII, VIII should be changed, and subdivisions for Categories IV, VI, and VII are suggested. The behavior classification contains 5 levels for measured intelligence and 4 levels for adaptive behavior. These criteria are used as indices for administrative groupings; however, the information provided is not sufficient for individual decisions. High intercorrelations have been found among the categories in the behavioral classification. Questions have also been raised concerning the assumption of a normal distribution of intelligence. At the present time, theory and research provide insufficient answers to the problems raised by the AAMD classification system. (41 refs.) - *J. K. Wyatt.*

19 WILSON, PAUL T.; & SPITZER, ROBERT L. A comparison of three current classification systems for the mental retardation. *American Journal of Mental Deficiency*, 74(3):428-435, 1969.

This paper and its tables compare 3 new systems used in this country to diagnose and classify MR: the *Manual on Terminology and Classification in Mental Retardation* published by the American Association on Mental Deficiency; the *Diagnostic and Statistical Manual of Mental Disorders* published by the American Psychiatric Association; and the eighth revision of the *International Classification of Diseases, Adapted for Use in the United States* developed by the World Health Organization and adapted by the U. S. Public Health Service. Although superficially similar in appearance, these systems may be used in significantly different ways. (7 refs.) *Journal abstract.*

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20 LAPOUSE, REMA; & WEITZNER, MARTIN. Epidemiology. In: Wortis, Joseph, ed. *Mental Retardation: An Annual Review--Volume I.* New York, New York, Grune and Stratton, 1970, p. 197-221.

High prevalence rates of MR are found in low socioeconomic levels and are associated with low occupational status, large family size, nonwhite race, poor quality and overcrowded homes, and subnormal height and weight. These conditions are quite often associated with poor schools and limited educational and occupational opportunities, poor nutrition, and poor health facilities. In a 1967 survey in Salford, England, only 1% of the pupils from schools of high social standing scored in the 50-79 IQ range as compared with 10% from schools of low social standing. The majority of mildly retarded persons can improve their IQ performance, can achieve partial or complete self-supporting ability during adult life, and can successfully adapt to and cope with the demands of the social environment. On the contrary, SMR individuals remain dependent and institutionalized throughout their life. There is apparently an equal distribution of the severely retarded among social classes. This uniformity may be explained in several ways; however, more data in this area are needed. The biological and social causes of MR do not operate independently but simultaneously and reciprocally. The present definition of MR is based on IQ tests which measure the individual's performance resulting from biological and social factors. (63 refs.) - *L. S. Ho.*

21 LAVECK, GERALD D. Epidemiologic research in mental retardation. *Clinical Proceedings*, 23(11):329-338, 1967.

While epidemiologic research provides much information about MR, it is somewhat limited in scope. Although there is some variation in reports from prevalence studies, it has been shown that MR is more common in the 10- to 14-year age group, males, the deprived, and those from large families, nonwhite populations, and MR parents. Two studies now being conducted are expected to give a more definite answer about the prevalence of MR. Parity and maternal age are factors in anencephalus, hydrocephalus, MR, mongolism, and chromosomal abnormalities associated with nondisjunction. Chromosomal defects are also thought to be connected with infections, drug intake, and endocrine disorders. Some studies show a clustering in time of chromosomal defects which, in one instance, followed a rubella outbreak by 6 to 10 months. A research project in Australia also shows a clustering of cases of mongolism. A detailed study of the relation of psychiatric impairment to MR and psychopathology to etiology was made in one institution, but the limited sample prevented any valid conclusions. In general, the findings from epidemiological research give only partial answers, but they provide a good basis for further studies. (4 refs.) *E. F. MacGregor.*

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22 Mental retardation. *Statistical Bulletin*, 48(November):5-8, 1967.

Distinctly higher mortality rates for MRs are noted in statistics from state institutions for the MR. In 1958, the death rate for MRs in 6 New York state institutions was substantially higher than that of the general population in each age group. The greatest differences occurred during childhood ages: at 5 to 9 years, the mortality rate was 61 times that of the general population; at 10 to 14 years, 37 times greater; at 5 years and under, 14 times greater. Within the retarded popu-

lation, the highest death rate occurred at ages < 5 (83.4/ 1,000) and varied directly with the degree of MR (42.5/1,000 among PMR; 10.7/1,000 among mildly MR). Death rates among MRs were highest in the first year of institutionalization and declined each year thereafter. For MRs under age 5, the death rate during the first year's residence was 210.9/1,000 as opposed to 6.5/1,000 in the general population. First year mortality for MRs ages 5 to 9 years was 87.6/1,000 compared with 0.5/1,000 for the general population. Newly admitted patients' high vulnerability to infectious diseases may contribute to the first year's high mortality rate. (No refs.) *C. L. Pranitch.*

23 LAWSON, J. S. Ethical problems associated with the management of congenitally handicapped new-born infants. *Australian Paediatric Journal*, 4(3):186-192, 1968.

The decision to apply life-saving measures to a severely handicapped infant with potentially lethal complications rests primarily with the physician. A survey of the parents of 20 such children revealed that all but one hoped their infant would die; however, few wanted the responsibility of making this decision themselves. The physician must consider each case individually in terms of the lesions involved, the religious beliefs of the parents, and the relevant social issues, and ideally, the final decision to apply or not to apply "extraordinary" means should be made by 2 or more senior physicians. (5 refs.) *E. L. Rowan.*

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Footscray, Victoria 3011, Australia

24 WILSON, WARNER. Social psychology and mental retardation. In: Ellis, Norman R., ed. *International Review of Research in Mental Retardation: Volume 4.* New York, New York, Academic Press, 1970, p. 229-262.

Analysis of the relation between social psychology and MR indicates that there is no exact social psychology of MR; however, some research in other areas is relevant. Social psychology of MR is beginning to emerge within the field of MR rather than in the field of social psychology. MR is considered in terms of genetic factors, ability levels, and the requirements of society. Solution to the increase of MR as a social problem is the immediate institution of eugenic programs. In the evaluation of the MR's social successes, mental ability seems moderately related to popularity. Vocational successful experience seems to be related to the degree of intelligence. Attitudes of the general public to MR are moderately unfavorable. Data relating to the retarded child and his family show that the retarded child has some adverse effects on the family, but there is a preference of home care over institutionalization. (142 refs.) - *B. Bradley.*

25 SONDERSORGE, RUDOLF. Geistig behindert--mehrfach behindert (Mentally retarded--Multiply handicapped). *Lebenshilfe*, 6(3):140-144, 1967.

It is not generally recognized by those in charge of MR institutions that associated physical handicaps accompany MR. A study conducted upon 500 MRs of all ages defined "damage" as any kind of defect, "disturbance" as a possibly curable diminution of personality development resulting from damage, and "handicap" as an incurable or seldom cured disturbance. Results indicated that 92% of the MRs had at least one additional handicap in body or speech and 51% had 2 additional body or speech handicaps. These facts call for further specialized training of MR institute directors and educators, and care of MRs with double handicaps in small groups where the student to teacher ratio should be no more than 5:1. (2 refs.) - *S. P. Glinsky, Jr.*

Auf der Tafel 5,
614 Bensheim,
West Germany

26 The point is to understand. *PCMR (President's Committee on Mental Retardation) Message*, 20(July)1969, 11 p.

Of 1,200,000 MR children, less than 1/2 receive special services and many of these children are concentrated in inner city, culturally impoverished areas. No regional area of the United States is providing for more than 70% of its MR children at best. Problems encountered in programs for EMR children include poorly trained or untrained teachers, poor financing, unimaginative state regulations, teacher reluctance to use para-professional personnel, and the influence of poor social and familial environments. One method of dealing with underprivileged children is to treat all children in certain neighborhoods as if they were in need of special education; in this type of program, the responsible agency would go in the particular area

with everything available and include all schools and their pupils in the program. Other suggestions are that national standards of education and financing be set, that educational materials should be made more relevant to everyday life, that an attempt be made to identify EMR children earlier in life, and that special education teachers should be well-trained. (2 refs.) - *M. Plessinger.*

27 ZUBEK, JOHN P., ed. *Sensory Deprivation: Fifteen Years of Research.* New York, New York, Meredith Corporation, 1969, 522 p. $9.50.

Because of the existence of numerous problems in the field, sensory deprivation is an area in which much investigation is currently being done. A comprehensive review of the subject is presented which examines the problems and suggests possible solutions. The historical background and methodological considerations provide a framework from which the subject is discussed. Experimental findings are represented with theoretical proposals providing possible explanations. Carefully controlled studies show that the Ss' set, personality, and aspects of confinement, rather than perceptual restrictions only, may produce classical sensory deprivation effects. Extreme attention to proper controls is therefore necessary. Perceptual restrictions do cause variable ranges of results because of the inherent differences among individuals. No one single predictor variable can consistently account for individual differences. Hence there appears to be value in a multipredictor model. Theories which attempt to explain the phenomena of sensory deprivation must employ models which translate into physiological and behavioral terms and adapt to the study of individual differences. To date there are several theories which explain some, but not all, aspects of sensory deprivation. (460-item bibliog; 740 refs.) - *K. H. Vogt.*

CONTENTS: Introduction and Historical Background (Suedfeld); General Methodological Considerations (Rossi); Variables Affecting Deprivation Results (Zuckerman); Hallucinations, Reported Sensations and Images (Zuckerman); Changes in Intellectual Performance and in Susceptibility to Influence (Suedfeld); Stimulus-Seeking Behavior (Jones); Sensory and Perceptual-Motor Processess (Zubek); Physiological and Biochemical Effects (Zubek); Tolerance for Sensory and Perceptual Deprivation (Myers); Clinical Sensory Deprivation: A Review of Hospitalized Eye-Surgery Patients (Jackson); Studies of Small Groups in Confinment (Smith); Theoretical Formulations: I (Zuckerman); Theoretical Formulations: II (Suedfeld).

28 United States Health, Education, and Welfare Department. *Mental Retardation Activities of the Department of Health, Education, and Welfare.* Washington, D. C., Superintendent of Documents, U. S. Government Printing Office, 1970, 74 p. $1.00.

During 1969, the Federally-administered Vocational Rehabilitation program provided rehabilitation services for more than 30,000 MRs, the services of clinics supported by the Maternal and Child Health Services were extended to approximately 40,000 MR children, and special education programs partially supported by Federal funds served more than 48,000 MR children. Construction projects for 301 community facilities which will provide services for approximately 75,000 MRs have been approved. More than $23.7 million will be spent for MR research during 1970. The surplus property program which makes surplus real and personal property available for health and educational purposes had transferred 5,035 acres of land and 765 buildings to institutions for use in MR programs as of June 30, 1969. The MR activities of the Department of Health, Education, and Welfare include preventive services, basic and supportive services, personnel training, research, the construction of university-affiliated and community facilities, and income maintenance. Descriptions of the MR activities of various offices, administrations, and services of the Department are described, and budget obligations for the 1969-1971 fiscal years are outlined. (No refs.) - *J. K. Wyatt.*

29 NEISE, KARL. Auslese aus der neueren anglo-amerikanischen Literatur zum Problemkreis der Koerperbehinderungen, insbesondere der Zerebralparesen (Selections from recent Anglo-American literature on the problems of physical handicaps, especially cerebral palsy). *Zeitschrift fur Heilpadagogik,* 18(8):450-470, 1967.

Specialized research on physical handicaps is increasing in Germany; however, experimental basic research is far behind other countries. Studies which explore the medical, psychological, pedagogical, social, and economic aspects of cerebral palsy have been performed in the United States and England for the past 20 years. These experimental studies have investigated the "Gestalt" psychology of the development of training methods for brain-damaged MRs, the underlying causes, distribution and intelligence levels of CPs, the effects of daily, 1-hour individual instruction upon MR CPs, the comparison of performances of normal and non-physically handicapped CP children in visual and tactile tasks, the

determination of the intelligence of CPs of different types, and the vocational rehabilitation of CPs and epileptics. Studies of children with orthopedic or other physical handicaps (diabetes and heart conditions) investigated the extent of the physical handicaps, the psycho-social characteristics, and the availability of special programs for children with orthopedic and health handicaps. (32-item bibliog.) - *S. P. Glinsky, Jr.*

Frangenheimstrasse 4,
5 Cologne-Lindenthal,
West Germany

30 DOERRIE, KLAUS. Zur Soziologie eines Behinderten-Verbandes (On the sociology of an MR association). *Lebenshilfe*, 6(4): 169-173, 1967.

The 10-year existence of *Lebenshilfe* has made, indirectly, a definite contribution toward a better German MR association in general. *Lebenshilfe* groups, in overcoming such negative association features as over-organization, rigid control from the top, and fruitless discussions, has preserved vitality and expertise in discussions, exercised control of its officers, and continually evaluated its achievements in spite of great heterogeneity of membership and potential conflict in several areas. The membership is welded together from 3 diverging groups of parents, experts, and interested parties. The governing boards strike a balance between the various opinions of these groups. When an actual MR school is established, areas of responsibility are clearly delineated between the association, its board and the director of the school. Finally, a smooth transition has been effected between the original lay pioneers of the MR associations and the trained, qualified personnel who later assume control. (No refs.) - *S. P. Glinksy, Jr.*

No address

31 D'YACHKOV, A. I. Osnovnye etapy razvitiya Sovetskoi defektologii (Main stages in the development of Soviet defectology). *Spetsial'naya Shkola*, 1(127):8-14, 1968.

A history of the developments in Soviet defectology since the Communist revolution in 1917 involves the following complex problems: the determination of the cognitive capabilities of exceptional children; the determination of their compensatory processes; the creation of a scientifically based pedagogic typology of exceptional children; and a Soviet theory of exceptional development. The periods of historical development include the development of new views on cognitive possibilities (1917-1920); the development of a theory of development of exceptional children (1921-1930); the development of a system of education and teaching (1931-1941); the development of methods of overcoming speech, hearing and other defects (1941-1945); and the development of the differentiated system of education and total compulsory education of the exceptional child (post-1945). The education of children with hearing defects is discussed in detail. (1 ref.) - *R. K. Butler.*

No address

32 VLASOVA, T. A.; & SHIF, ZH. I. Voprosy psikhologii umstvenno otstalykh na XVIII Vsemirnom psikhologicheskom kongresse (Questions on the psychology of the MR at the XVIII World Psychological Congress). *Spetsial'naya Shkola*, 1(127):85-104, 1968.

The XVIII World Psychological Congress held in Moscow from August 4-11, 1966 included 38 symposia, 9 thematic sessions, 3 evening sessions open to the public, and movie demonstrations. Thirteen reports were read on characteristics and peculiarities of personality and methods of classifying MR children, and 27 reports were read on the cognitive activity of MR children. (No refs.) *R. K. Butler.*

Institute of Defectology
USSR Academy of Pedagogic Sciences
Moscow, USSR

33 ERSHOVA, V. K. Sistematicheskii ukazatel' statei k sborniku "Spetsial'naya Shkola" za 1958-1966 gg (Systematic bibliography of works appearing in "Spetsial'naya Shkola" for 1958-1966). *Spetsial'naya Shkola*, 1(127):113-138, 1968.

A 606-item bibliography of the works published in this journal over a 9-year period is given according to subjects which include general problems, teaching blind deaf-mutes, teaching the blind, teaching MRs, special psychology, teaching speech, work done abroad, critiques and bibliographies, chronicles, and obituaries. (No refs.) - *R. K. Butler.*

K.D. Ushinskii State Library for
National Education
Moscow, USSR

MEDICAL ASPECTS--DIAGNOSIS (GENERAL)

34 GROSSMAN, HERBERT J. Comprehensive diagnostic services in mental retardation. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers.* Springfield, Illinois, Department of Mental Health, 1969, p. 3-6.

Comprehensive diagnostic services for the MR should be interdisciplinary so that a variety of skills, techniques, and services can be used. Since MRs may have additional handicaps, diagnostic services should be broad and comprehensive and related to individual needs. Individual problems should be constantly reassessed and identified as growth and development occur. Diagnostic emphases should be related to the specific problems of the patient rather than to the interests of a specific agency director. Professional standards for services for MRs should be developed, and substandard services should not be tolerated. The various disciplines should develop mutual respect for one another. Diagnosis can be used for planning for long range community needs and for the accumulation of accurate data. (1 ref.) - *J. K. Wyatt.*

35 ROZENFELD, IRVING H. Pediatric aspects of diagnosing mental retardation. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers.* Springfield, Illinois, Department of Mental Health, 1969, p. 7-10.

The major emphases of diagnosis in a child who manifests the symptoms of MR are to uncover any medical or emotional problems which may be related to retarded intellectual functioning and to identify processes which may be currently receptive to therapy. A complete physical examination and detailed history can alert the pediatrician to the possibility of certain disease processes. These data may be used to determine the need for specific laboratory tests and additional medical consultation. Among the specialists who may evaluate a child after the pediatric examination are psychiatrists, ophthalmologists, otolaryngologists, pediatric neurologists, medical biochemists, and geneticists. Recent advances in biochemistry and cytogenetics have led to the discovery of enzyme deficiencies, metabolic disorders, and gross somatic abnormalities associated with chromosomal anomalies. Although there is no specific medication for MR, there may be specific medication or therapy for underlying disease processes. (No refs.) - *J. K. Wyatt.*

36 GREENSTEIN, MELVIN. Diagnosis and evaluation of the adult mentally retarded. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers.* Springfield, Illinois, Department of Mental Health, 1969, p. 26-37.

Adequate diagnosis and evaluation of adult MRs require the examination, analysis, and appraisal of their needs in relation to their adjustment to work and society. At the Kennedy Job Training Center, the processes of diagnosis and evaluation are built around a sheltered workshop setting and are augmented by a professional rehabilitation team. The workshop milieu provides the realities of work, the demands of a work situation, and conditions which can be manipulated to expose a client to a variety of experiences. The development of the self-image and movement toward the best possible adjustment are emphasized. Diagnostic data include background information, psychological tests, staff observations, and a self-concept check list. During evaluation, the client is given an orientation into workshop activity and schedules and participates in an incentive system designed to develop appropriate work behaviors. An evaluation form which contains information on performance, interpersonal relations, attitudes, and the trainee as a worker is completed by the evaluation supervisor. At the close of the 6-week evaluation period, the client's major strengths and weaknesses are summarized, and a plan consistent with the client's vocational goals is devised. (3 refs.) - *J. K. Wyatt.*

37 ST. LAWRENCE, DONALD. Diagnosis and follow-up nonmetropolitan areas. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Department of Mental Health, 1969, p. 204-210.

Among the models for the provision of diagnostic and follow-up services in nonmetropolitan areas are the multipurpose state-aided community mental health center, a multicounty contractual agreement, multidistrict special education systems, and the provision of state-wide services from a central point. In Illinois, state services are organized at a zone and multizone levels and are provided where local facilities do not exist. The zone is responsible for meeting current service needs while working with local communities to develop adequate resources. Communities appear to prefer services that are locally organized, partially financed with local funds, and locally administered. The multicounty approach is economically feasible in areas with low population density. Multilevel organization and financing should be used to design a balanced interdependent program. Knowledge of community attitudes and expectations are important in the diagnostic relation with the MR and his family as well as in program planning. Services for the MR and mentally ill should be integrated in all facilities and on community, diagnostic, and follow-up levels. (2 refs.) - *J. K. Wyatt.*

38 TOOLE, JAMES F., ed. *Special Techniques for Neurologic Diagnosis*. Philadelphia, Pennsylvania, F. A. Davis, 1969, 226 p. $7.50.

The techniques included in this discussion of neurological diagnosis were selected to highlight the activities of the team working in the neurological sciences at the Bowman Gray School of Medicine. Among the methods described are techniques for the study of cerebrospinal fluid and interpretation of the results, bedside neuro-ophthalmological tests, a clinico-anatomical method for the interpretation of cerebral angiograms, the uses of isotopes, catheter angiography, X-rays, a method of cervical myelography, cerebral biopsy, and ultrasonic techniques. The author of each chapter discusses his personal experiences with a variety of tests which range from the simple to the complex. This book should be of interest to neurologists, neurosurgeons, ophthalmologists, pathologists, and radiologists. (242 refs.) - *J. K. Wyatt.*

CONTENTS: Some Aspects of the Neurologic Interview (Toole); The Neuro-Ophthalmologic Examination (Weaver & Stanley); Examination of the Cerebrospinal Fluid (Cole); Ordering X-Rays and Performing Contrast Studies-Problems, Pitfalls, and Practical Points (Davis & Martin); Radioisotope Studies in Neurodiagnosis (Maynard & Janeway); Roentgen Signs of Abnormality in Cerebral Angiograms (Meschan); Current Techniques for Aortocranial Angiography (Janeway); Lateral Cervical Percutaneous Myelography (Kelly); Diagnostic Cerebral Biopsy (Moossy); Echoencephalography (McKinney).

39 NEWCOMBE, HOWARD B. Value of Canadian hospital insurance records in detecting increases in congenital anomalies. *Canadian Medical Association Journal*, 101(3):121-128, 1969.

The special value of Canada's unique system of hospital insurance records as a source of information from which to detect possible future increases in congenital anomalies has been studied, using data on children born in Nova Scotia in 1964. Where hospital insurance records were used in conjunction with infant death registrations, 18 children with congenital defects/1,000 births were recognized during the first month of life and 28/1,000 by one year of age. These rates are higher than have been observed elsewhere using other kinds of records. The evidence suggests that such data should be extracted from multiple sources, including hospital insurance and death records, physicians' notifications of births and special registers of handicapping conditions so as to provide the accuracy of identification of affected infants and the adequate recording required for early detection of trends in the occurrence of congenital anomalies. Major clerical work would not be involved if modern mechanical and electronic aids were used appropriately. (15 refs.) - *Journal summary.*

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40 BAX, MARTIN; & MACKEITH, RONALD. Does early recognition help? *Developmental Medicine and Child Neurology*, 11(4):411-412, 1969. (Editorial)

While the early identification of neuromotor disorders runs the risk of treatment for temporary anomalies (and unnecessary worry for parents) and may cause earlier institutionalization (with its attendant evils), in many cases early identification leads to early treatment which may reduce the disability. In addition, the etiology may be more easily

elucidated and proper treatment thereby discovered. (No refs.) - *E. F. MacGregor.*

41 DANCIS, JOSEPH. The prenatal detection of hereditary defects. *Hospital Practice*, 4(6):36-41, 1969.

Many hereditary defects can now be determined antenatally by examination of the amniotic fluid and its cells. Bilirubin in the fluid reflects the degree of erythroblastosis in the fetus, and cells can readily be sexed on the basis of a Barr body; however, real advances lie in the examination of cultured amniotic fluid cells. Cultures can be karyotyped and assayed biochemically for a wide range of enzyme deficiencies. New techniques to improve the ratio of successful cultures and to speed up culture growth are badly needed, but even now, it is possible to initiate neonatal management of treatable disorders and to interrupt pregnancy if there is no treatment available. (No refs.)
E. L. Rowan.

New York University School of Medicine
New York, New York 10016

42 Putting the finger on disease. *Medical World News*, 10(11):G42-G43, G47, 1969.

The study of dermatoglyphics has enabled researchers to identify abnormal patterns and numbers of dermal ridges, and positions of triradii as a part of many chromosomal anomalies. Down's syndrome is associated with a predominance of fingertip ulnar loops and the absence of loops and whorls in the hallucal area. Patients with D-trisomies show distal triradii, radial loops on fingertips, tibial loops in the hallucal area, and polydactyly. Polyploidy is associated with excess radial loops and zygodactyly. The absence of an X chromosome (Turner's syndrome) is associated with high total ridge counts, and extra X chromosome syndromes are associated with low counts, possibly reflecting intrauterine edema and dehydration, respectively. It is important to note that chromosomal errors are superimposed upon normally inherited patterns. (No refs.) - *E. L. Rowan.*

43 MAURIN, PH.; & HENRY, P. Electrophorese et immunoelectrophorese du L.C.R. en pathologie nerveuse (Electrophoresis and immunoelectrophoresis of the CSF in neuropathology). *La France Medicale*, 32(8):359-369, 1969.

Electrophoresis permits the separation of cerebrospinal fluid (CSF) into its constituent protein fractions which can be then identified on the basis of relative mobility, relative concentration, and frequency of appearance. The 17 protein fractions which have been isolated (of which only 10 are common) can be analyzed in more detail by using immunoelectrophoresis which distinguishes between proteins by their biochemical structure. The electrophoresis curves of pathological CSF samples can be separated into the transudate curve which resembles a serum curve, the degenerative curve, and the γ-globulin curve. The transudate curve appears in such conditions as acute meningeal infections, acute poliomyelitis, cerebral tumors, Froin's syndrome, and certain acute vascular accidents. The degenerative curve is characteristic of such conditions as cerebral and cerebellar atrophies, certain epilepsies, some cerebral arteriosclerosis, and certain encephalopathies. The γ-globulin curve is associated with multiple sclerosis, neurosyphilis, trypanosomiasis, subacute sclerosing leukoencephalitis, and toxoplasmosis. (17 refs.) - *M. G. Conant.*

44 HARROD, EMMA K.; & COHEN, MAIMON M. Cytogenetic analysis of portmortem cultured leukocytes. *Pediatrics*, 44(1):128-130, 1969.

Cytogenetic analysis was successfully performed on leukocyte cultures from 32 of 37 fetuses and infants 2 to 288 hours after death. Eighty-three percent and 33% of the cultures initiated 2 to 85 hours and 89 to 288 hours postmortem, respectively, were suitable for cytogenetic analysis. This method is simpler, quicker, and more reliable than the usual fibroblast culture method. Fatal bacterial and viral contaminations did not interfere with successful cell culture. Of the 7 culture failures, 4 were from stillborn infants who probably died 12 or more hours before delivery, 2 were from patients who had received intracardiac adrenaline, calcium chloride, and sodium bicarbonate, and one was from a premature infant 288 hours postmortem. (8 refs.) - *L. S. Ho.*

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MEDICAL ASPECTS--PREVENTION AND ETIOLOGY (GENERAL)

45 HALL, JOHN B. Public health serves the mentally retarded. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers.* Springfield, Illinois, Department of Mental Health, 1969, p. 130-132.

The public health department serves MRs and their families by providing counseling and support, fostering the development of positive attitudes, providing supervision, finding new cases, and helping to develop positive community attitudes. A multidisciplinary approach which employs all available competencies should be used to foster the adjustment of the MR child and his family. Information on the status of the child and family should be made available to all members of the public health team. (1 ref.)
J. K. Wyatt.

46 KIRMAN, BRIAN H. Clinical aspects. In: Wortis, Joseph, ed. *Mental Retardation: An Annual Review--Volume I.* New York, New York, Grune & Stratton, 1970, p. 42-56.

The etiology of MR, although obscure in a majority of cases, is the bases for treatment and prevention of brain damage and for counseling parents with an affected child. Environment, genetics, and infection are the 3 main factors in the genesis of MR. Environmental factors are very complex; however, their effects have long been recognized in institutions and orphanages. The advancement of genetical knowledge and cell culturing techniques has contributed much to the understanding of MR. Long-term fibroblast culturing techniques may have some diagnostic value. Mild MR (IQ between 50 and 80) is less understood than more severe forms. The majority of these EMRs are clinically normal, but there is ample evidence that intelligence in this range is influenced by both socioeconomic and hereditary factors. Rubella infection and subacute encephalitis are examples of infectious conditions which can cause permanent disabilities. Head injuries, psychological disturbances, and infantile autism may be related to mental handicaps. Management of the MR depends upon cooperation between psychiatrists, pediatricians, and social workers. (104 refs.) - *L. S. Ho.*

47 CUMINGS, JOHN N.; & KREMER, MICHAEL, eds. *Biochemical Aspects of Neurological Disorders: Third Series.* Oxford, England, Blackwell Scientific Publications, 1968, 302 p. $11.00.

Neurological disorders associated with autoimmunity, inborn errors of metabolism, hydrocephalus, hypertension, cerebrovascular accidents are discussed from their biochemical aspects. Pharmacological effects of phenothiazines, the diagnostic application of ionizing radiation, its damage to the CNS, and its therapeutic value in the treatment of various brain tumors are also discussed. Immunological hypersensitivity is probably the etiological agent for encephalopathy which sometimes follows infections or vaccinations. Experimentally produced allergic encephalomyelitis in animals shows many features which are similar to demyelinating disorders in humans. MR is commonly associated with phenylketonuria, maple syrup urine disease, and homocystinuria; however, early diagnosis and dietary treatment may prevent deterioration of the individual mentally and physically. Among surgical procedures for treatment of hydrocephalus, ventriculo-venous shunt gives the best prognosis for children. Gaucher's disease, Niemann-Pick disease, Tay-Sachs disease, metachromatic leukodystrophy, and amaurotic family idiocy result from specific hereditary defects of sphingolipid metabolism. Other genetically determined neurological disorders are infantile necrotizing encephalopathy, hereditary fructose intolerance, abetaproteinemia, and hyperuricemia. Huntington's disease and Friedreich's ataxia are probably also caused by inborn errors of metabolism. This book should be of interest to neurologists, clinicians, and biochemists. (936 refs.) - *L. S. Ho.*

CONTENTS: Some Neurological Disorders in Relation to Autoimmunity (Kremer); The Immune Response in Relation to the Nervous System (Cohen); Autoimmune Demyelinating Disorders (Zilkha); Demyelinating Diseases and Allergic Encephalomyelitis. A Comparative Review with Special Reference to Multiple Sclerosis (Caspary); Phenothiazines and Related Substances in Psychiatry and Neurology. Clinical Effects (Lishman); Biochemical Pharmacology of Phenothiazines and Related Substances

(Curzon); Neurological Disorders Associated with Abnormal Amino-acid Metabolism (Wolff); Biochemical Aspects of Neurological Disorders Associated with Abnormal Amino-acid Metabolism (Woolf); Hypertension and Cerebrovascular Disease (Marshall); The Pathogenesis of Cerebral Hemorrhage and Cerebral Infarction (Mitchell); Nucleic Acid Metabolism in Neurology (Russell); Protein Synthesis and the Molecular Basis of Memory (Campbell); The Use of Ionizing Radiation in Neurology (Jelliffe); Biochemical Aspects of Ionizing Radiation in Neurology (Lascelles); Hydrocephalus (Logue); The Cerebrospinal Fluid Pressure (Davson); Genetically Determined Neurological Diseases in Children (Wilson); Genetically Determined Neurological Diseases of Children (Cumings).

48 PUBLIC HEALTH SERVICE. *Mental Retardation, Its Biological Factors: Hope Through Research*. (Publication No. 1152). Washington, D. C. Superintendent of Documents, U. S. Government Printing Office, 1968, 23 p. $0.15.

Biological factors in MR are responsible for chemical or physical changes to the nervous system or brain; neurological diseases created by biological factors account for much of the MR in the United States. The life span of MR individuals has increased through advances in medical knowledge and research. If a national program to combat MR is to be successful, it must include research to provide a better understanding of the function and structure of the CNS. Early detection is vital, and it is important that regular medical care is given to pregnant mothers and newborn infants. Multiple handicaps require more medical supervision than average. Geneticists can counsel parents about the probability of recurrence of MR in future children. A continuum of services (including early training and education) should be available to families of the MR. Community resources should be utilized, and religious, social, and recreational programs should be provided for the MR. (5-item bibliog.) - *S. Half.*

49 WORTIS, HELEN. Poverty and retardation: Social aspects. In: Wortis, Joseph, ed. *Mental Retardation: An Annual Review--Volume I*. New York, New York, Grune & Stratton, 1970, p. 262-270.

Since life experience and the socio-cultural milieu are the factors which account for significant behavioral and intellectual differences in the vast majority of human beings, planned preventive action for MR depends on the identification of causal socio-economic factors. Socio-cultural factors related to MR are poverty, bad physical environment, lack of medical services, exposure to disease, malnutrition, and adverse learning conditions. Poverty not only fails to provide essential stimuli for healthy development, it actively threatens the physical well-being of the individual. Children are most vulnerable to the varied stresses of poverty, and during early development, the insults of poverty may affect physical and mental growth. Children of poverty perform poorly when they reach school age because of cerebral deficit, lack of opportunities, lost learning time, and/or inadequate experiences. The number of children performing under the expected limits increases until early adolescence because of continued exposure to environmental stress and inadequate educational experiences. After this time, most of the mildly retarded individuals from poverty backgrounds become indistinguishable from most of their peers with similar backgrounds. (52 refs.) - *J. K. Wyatt.*

50 WORTIS, JOSEPH. Poverty and retardation: Biosgcial factors. In: Wortis, Joseph, ed. *Mental Retardation: An Annual Review--Volume I*. New York, New York, Grune & Stratton, 1970, p. 271-279.

Among the medical factors implicated in the problem of MR are complications of pregnancy and delivery, prematurity, malnutrition, and exposure to infection. The poor are especially exposed to medical hazards related to MR, and they have inadequate provisions for medical care. Incidence rates for illness, accident, injury, lead ingestion, drug addiction, premature birth, infant mortality, and malnutrition are higher among the poor. A general correlation between poor scholastic achievement, low socio-economic status, and poor physical development has been noted. The causal interrelations of the defects identified in backward children almost always relate significantly to a common factor--poverty. In addition, the various hazards of pregnancy, birth, and infancy are higher among Negroes than Caucasians. Since many of the medical conditions associated with poverty can be corrected, every available resource should be directed toward improving health and medical services. Mild MR, which is widespread among the poor, should be attacked by educational and social measures, since its primary cause appears to be of a psycho-social nature. (54 refs.) *J. K. Wyatt.*

51 DRILLIEN, C. M. Complications of pregnancy and delivery. In: Wortis, Joseph, ed. *Mental Retardation: An Annual Review--Volume I.* New York, New York, Grune & Stratton, 1970, p. 280-297.

Low birth-weight appears to be significantly related to the incidence of mental neurological defects. The defects of as many as 1/2 of infants with birth-weights of 2,000 gms or less may be of a developmental nature and are unlikely to be affected by improved prenatal maternal care or postnatal infant care. Factors associated with birth-weight which is inappropriately low for gestational age in humans and animals are placental insufficiency, fetal malnutrition, multiple birth, retarded intrauterine growth, hypoxia, and biochemical disturbance. The incidence of low birth-weight neonates and infants with a variety of developmental malformations is high among mothers with a history of infertility. The incidence of low birth-weight is increased in the children of women of low social class. Both mild and moderate MR without other disabilities and functional MR are associated with impoverished and deprived environments. The close association between MR and low family income, inadequate prenatal care, and high incidence of obstetric complications may be due to the common factor of poverty. As long as a substantial minority of the population of the United States live in poverty conditions, improved maternal care and health supervision of mothers and children will have little effect on the incidence of MR. (72 refs.) - *J. K. Wyatt.*

52 YAVKIN, V. M. K voprosu o semeinykh formakh oligofrenii (Familial forms of oligophrenia). *Spetsial'naya Shkola*, 5(131): 91-103, 1968.

Heredity plays a large role in the etiology of MR; however, heredity can be influenced by external factors. The influence of etiological factors in the development of familial MR is presented,and an explanation of the characteristics of the clinical picture of these forms is presented. Of 5,251 MR cases, 411 (7.82%) were observed to be familial. Thirty families were selected in which there was more than one MR. From a group of 5 families (22 children), 18 Ss had MR with syphilis as the main etiologic factor. The second form of MR considered is hereditary. Six families with 17 children were studied in this category; a common factor was the tendency of the mother to be MR. This hereditary group is a basically uncomplicated form of MR characterized by underdeveloped cognitive activity and a lack of emotional-volitional disturbances. In one family in which there were 7 miscarriages and abortions and 5 births, the mother and her 4 brothers were MR, and 3 siblings studied were MR. Another group of MR includes those in which pre-, para-, or postnatal factors affected the S. In these cases, neurological symptoms were clearly expressed, as well as a lowered work capacity and emotional-volitional disturbance. The action of harmful exogenous factors coupled with an unfavorable heredity can lead to more severe cases of MR than those of a purely hereditary nature. (4 refs.) - *R. K. Butler.*

USSR Academy of Pedagogic Sciences
Moscow, USSR

53 COLTART, T. M.; TRICKEY, N. R. A.; & BEARD, R. W. Foetal blood sampling. Practical approach to management of foetal distress. *British Medical Journal*, 1(5640): 342-346, 1969.

The pH of fetal blood was determined in 196 deliveries in which the obstetrical history was normal, but signs of fetal distress (tachycardia and/or meconium staining of liquor amnii) appeared during labor and in 169 "at risk" deliveries (toxemia, post-maturity, advanced maternal age, "small-for-dates" fetus, and hemorrhage). Fetal distress occurred in 59% of the "at risk" patients. Fetal acidemia as a reflection of fetal hypoxia occurred in 45 cases and was not demonstrated in the absence of fetal distress. Thirty-three of these 45 infants had tachycardia. Management of the infant with acidemia depended upon the pH value obtained. Borderline acidemia (7.24-7.25) was managed clinically, moderate acidemia (7.21-7.23) necessitated serial sampling, and severe acidemia (7.20 or less) required immediate delivery. Overall perinatal mortality was decreased after the initiation of fetal pH monitoring, and in conjunction with clinical evidence of fetal distress, such monitoring appeared to reliably predict when fetal hypoxia necessitated termination of labor. (17 refs.)
E. L. Rowan.

Queen Charlotte's Hospital
London W. 6, England

54 DROEGEMUELLER, W.; JACKSON, C.; MAKOWSKI, E. L.; & BATTAGLIA, F. C. Amniotic fluid examination as an aid in the assessment of gestational age. *American Journal of Obstetrics and Gynecology*, 104(3):424-428, 1969.

Amniotic fluid creatinine concentration was more reliable than bilirubin concentration or

percentage of fetal sebaceous cells in determining gestational age when the latter was estimated by menstrual history and confirmed by physiological and neurological examination of the newborn. Amniocenteses were performed during the third trimester on 65 patients with a reliable menstrual history and no obstetric complications. There was no correlation between bilirubin concentration and gestational age, and the percentage of anucleated squames was not as reliable as the creatinine concentration. Creatinine in the amniotic fluid probably reflects increased clearance by the maturing fetal kidney, and after 36 weeks gestation, the creatinine concentration is greater than 1.8 mg/100. (13 refs.) - *E. L. Rowan.*

4200 E. Ninth Avenue
Denver, Colorado 80220

55 WYATT, THOMAS H.; HALBERT, DAVID R.; & CRENSHAW, CARLYLE, JR. Estimation of fetal maturity by cytologic examination and creatinine determination of amniotic fluid. *Obstetrics and Gynecology*, 34(6):772-778, 1969.

An amniotic fluid creatinine concentration over 1.5 mg/100 was more reliable than a "fat cell" count greater than 20% in predicting fetal maturity defined as birth-weight of 2,500 or greater. Among a group of 97 patients, the maturity by weight was indicated correctly by 94% of the fat cell counts and by 97% of the creatinine concentrations in the amniotic fluid. The fat cell counts were difficult to interpret in patients with meconium-stained amniotic fluid. Creatinine concentration is reliable in the presence of meconium staining, diabetes mellitus, and erythroblastosis fetalis and can be a valuable adjunct to menstrual history and physical examination in estimating fetal maturity. (10 refs.) - *E. L. Rowan.*

56 DANES, B. SHANNON. Cell cultures and genetic disease. *Hospital Practice*, 4(4):88, 92-94, 1969.

The study of cell cultures of skin fibroblasts has revealed metachromatic staining cytoplasmic inclusions in patients with a number of inherited metabolic diseases and in relatives who are carriers. This metachromasia was observed in families with genetic mucopolysaccharidoses (Hurler's, Hunter's, Scheie's, Sanfilippo's, and Morquio's syndromes), juvenile familial amaurotic idiocy, Gaucher's disease, and cystic fibrosis. Two types of abnormalities were demonstrated in cystic fibrosis: a diffuse metachromasia found throughout the cytoplasm and metachromasia limited to vesicles. Clinically these patients are indistinguishable. In all cases, the culture technique has confirmed pedigree studies of the distribution of the carrier state in these autosomal recessive and X-linked recessive diseases. Not only will this technique provide delineation of clinically undetected carriers for more accurate genetic counseling, but it may also yield information in more basic aspects of cellular biology. (No refs.) - *E. L. Rowan.*

Cornell University Medical College
New York, New York 10021

57 WILKINS, JOHN L. Risks to offspring of patients with patent ductus arteriosus. *Journal of Medical Genetics*, 6(1):1-4, 1969.

The incidence of congenital heart disease among offspring of parents with patent ductus arteriosus (PDA) was 3/179, and the incidence of PDA in offspring was 2/179. The incidences are 1/200 and 1/2,000, respectively, for the general population. In sibs of the parents studied, the incidence of congenital heart disease was 2/198 and of PDA 1/198. Other congenital abnormalities including hydrocephalus, bilateral renal dysplasia, shortening of the right femur, and Down's syndrome were found in offspring. Patent ductus arteriosus is probably transmitted as a modified dominant or polygenic inheritance. (11 refs.) *L. S. Ho.*

Laboratory of Human Genetics
19 Claremont Place
Newcastle upon Tyne, NE2 4AA, England

58 BAIRD, DUGALD. Perinatal mortality. *Lancet*, 1(7593):511-515, 1969.

A survey on the perinatal mortality rate in England, Wales, and Scotland (with special reference to Aberdeen) from the 1930s to 1967 showed that 2 factors were involved: the mother's reproductive capacity and medical care provided during pregnancy and labor. Mortality rates were higher than the national average in the North of England and in Scotland, especially, in the lower socio-economic groups in large cities and in short women (less than 62 in). The lowest rates were found in the group of women who were tall (65 in or more), whose husbands were professional

men, and who themselves had professional occupations before marriage. This reflects the favorable environment *in utero* to maturity in such women. Death due to obstetrical complications has steadily decreased over the past 20 years in Aberdeen; however, such improvement did not occur in the nation as a whole. (4 refs.) - *L. S. Ho.*

The M. R. C. Medical Sociology Research Unit
Foresterhill, Aberdeen, Scotland

59 DAVIES, PAMELA. The single umbilical artery. *Developmental Medicine and Child Neurology*, 11(3):372-374, 1969.

A single umbilical artery may or may not be associated with malformations and perinatal mortality, and more careful observation and follow-up areneeded in order to resolve this question. Frequency of this anomaly is associated with ethnic (Caucasians 3 times more commonly affected than Negroes) and medical (more common in diabetes and twins) differences in the mothers and depends also on the site of cord sampling (frequent anastamoses occur at the placental end). Absence of an umbilical artery may be due to primary agenesis or secondary arrest and degeneration; other congenital anomalies are more likely to be associated with the former. Specific anomalies including sireniform and acardiac monsters, genito-urinary malformations, and chromosomal abnormalities have been noted; however, the findings of anomalies are dependent upon the population sampled, the thoroughness of the clinical examination, and the frequency of autopsy. If a single umbilical artery is to be implicated in hypoxia and nutritional deficiency as cause of malformations, then more study is necessary. (30 refs.) - *E. L. Rowan.*

Hammersmith Hospital
Du Cane Road
Shepherd's Bush, London, W. 12, England

60 NESBITT, ROBERT E. L., JR.; & AUBRY, RICHARD H. High-risk obstetrics. II. Value of semiobjective grading system in identifying the vulnerable group. *American Journal of Obstetrics and Gynecology*, 103(7): 972-985, 1969.

An arbitrary system of levying penalties against all presumed adverse obstetric factors was devised by grouping abnormal conditions in 8 categories and by expressing degrees of anticipated perinatal vulnerability as a numerical score which results from the sum of all the penalties subtracted from 100. This system was applied to 1,001 consecutive ward patients and 3 general groupings were found: a high-risk group with scores of less than 70 (29%); a moderate-risk group with scores of 70 to 84 (39%); and a low-risk group with scores above 85 (31%). The risk of antenatal and intrapartum complications and poor perinatal outcome among the high-risk group was twice as great as that observed among the remaining patients, and patients with the lowest scores consistently yielded the poorest obstetric results. The primary conditions associated with poor perinatal outcome are generative tract disorders, one or more fetal deaths from hemolytic disease, hypertensive cardiovascular renal disease, prior cesarean section in combination with a low index score, systemic illness, and one or more previous perinatal deaths from any cause. The use of a relatively sensitive screening devise of this type allows attention to be focused on the approximately 30% of women who will give rise to 60% or more of all pathologic outcomes and should allow intensified effort on this group. (11 refs.) *M. G. Conant.*

State University of New York
Syracuse, New York 13210

61 GARUD, MOHINI A.; MAY, DAVID P. L.; & SIMMONS, STANLEY C. Foetal blood sampling in the regional hospital. *British Medical Journal*, 1(5640):346-348, 1969.

Fetal blood pH determination is very valuable in assessing fetal status and in reducing unnecessary operative interventions. Of 53 cases with clinical signs of fetal distress, only 11 had pH values below 7.20. Of these, 6 were delivered by cesarean section, 3 with forceps, and 2 delivered spontaneously. Of the 16 high-risk patients with no clinical fetal distress, only one had a low pH and was delivered by forceps. (7 refs.) - *L. S. Ho.*

Windsor and Slough Obstetric Unit
Upton Hospital
Slough, England

62 BEISCHER, N. A.; EVANS, J. H.; & TOWNSEND, LANCE. Studies in prolonged pregnancy. I. The incidence of prolonged pregnancy. *American Journal of Obstetrics and Gynecology*, 103(4):476-482, 1969.

Follow-up of 2,972 women first evaluated during the first trimester of pregnancy revealed that 339 (11.4%) had a prolonged pregnancy (42 weeks or more beyond the first day of the

last menstrual period). Unreliability is inherent in such an estimate because of its dependence on maternal memory and biological variables such as the time of ovulation. Among those delivering after 42 weeks of gestation, there was a significantly greater number of native Australians than women of Mediterranean origin (Italy or Greece). The incidence of prolonged pregnancy decreased as maternal age increased, but there was no correlation between parity and prolongation of pregnancy. Threatened abortion (vaginal bleeding during the first trimester) was significantly more frequent in those delivering after 42 weeks than in those delivering between the 28th and 41st weeks of gestation. (22 refs.) - *E. L. Rowan.*

Royal Women's Hospital
Melbourne, Victoria, Australia

63 BEISCHER, N. A.; BROWN, J. B.; SMITH, M. A.; & TOWNSEND, LANCE. Studies in prolonged pregnancy. II. Clinical results and urinary estriol excretion in prolonged pregnancy. *American Journal of Obstetrics and Gynecology*, 103(4):483-495, 1969.

Serial determinations of urinary estriol excretion were found to be of value in the determination of placental insufficiency in a series of 339 prolonged pregnancies (beyond 42 weeks gestation). Approximately 20% of these women had at least one low estriol value (less than 12 mg/24 hour urine) recorded. Birth-weight increased with increased gestation, and 18.2% of these infants weighed more than 4,000 gms. The average duration of labor in these patients was not prolonged but the cesarean section rate doubled after 42 weeks. Fetal distress was significantly increased but was not related to birth-weight or parity. Low estriol excretion was significantly correlated with fetal distress, parity (primigravidas), and vaginal bleeding during the first trimester. Five fetal deaths were recorded during labor and delivery (3 were failure to recognize fetal distress, one was from abruptio placenta, and one was unexplained). The postmaturity syndrome was present in 24% of infants whose mothers had normal levels of estriol and in 60% of those whose mothers had low levels. Two significant patterns of urinary estriol excretion were identified: one with persistently low values and one with an abrupt decrease before the onset of labor. The only infant in the series with known cerebral damage was in the latter group, and this pattern may give the most valid indication of feto-placental dysfunction. (42 refs.) - *E. L. Rowan.*

Royal Women's Hospital
Parkville, Victoria, Australia

64 BEISCHER, N. A.; BROWN, J. B.; & TOWNSEND, LANCE. Studies in prolonged pregnancy. III. Amniocentesis in prolonged pregnancy. *American Journal of Obstetrics and Gynecology*, 103(4):496-503, 1969.

Amniocentesis was performed in 231 women with prolonged pregnancy (beyond 42 weeks gestation) in order to assess the value of the volume of amniotic fluid and the presence of meconium in the determination of fetal distress. Volume was quite accurately estimated by the dilution technique which uses sodium aminohippurate, and oligohydramnios was commonly found. Failure of amniocentesis (10%) was largely due to a very low volume of amniotic fluid and was associated with low urinary estriol excretion and a high incidence of placental insufficiency. Meconium in the fluid (7%) was associated with fetal heart rate abnormalities. When amniocentesis failed or meconium was obtained, the incidence of moderate to severe placental insufficiency was 52.6%. Such a finding should be regarded as an indication for the induction of labor. (13 refs.) - *E. L. Rowan.*

Royal Women's Hospital
Parkville, Victoria, Australia

65 ROBERTS, C. J. Incidence of and relation between the common complications of pregnancy and delivery. *British Journal of Preventive and Social Medicine*, 23(2):128-131, 1969.

The incidence of bleeding in pregnancy, toxemia, anemia, prolonged hyperemesis, and birth hazards (asphyxia, forceps delivery, cesarean section, exchange transfusion, and breech delivery) and the relation between them were determined in 332 single pregnancies which resulted in a live birth. Forty-two percent of the mothers experienced one or more complications including bleeding, toxemia, prolonged hyperemesis, anemia, or birth hazards. Bleeding and toxemia were present

in 20% of the pregnancies and were associated with 30% of all birth complications. The incidence of bleeding was higher among the higher social class and among older mothers; anemia was more common among the lower social classes, and toxemia and hyperemesis were unrelated to maternal age, parity or social class. In more than 1/2 of the cases involving birth hazards, one or more of the complications of pregnancy had occurred. (11 refs.) - *M. G. Conant.*

Welsh National School of Medicine
Wales, Great Britain

MEDICAL ASPECTS--ETIOLOGIC Groupings

Infections, intoxication, and hemolytic disorders

66 JONES, ELISE. Cytomegalic inclusion disease. *Southern Medical Journal*, 62(2):175-176, 1969.

Generalized cytomegalic inclusion disease of the heart, liver, pancreas, submandibular glands, ovary, thyroid, thymus, kidney, adrenal, anterior pituitary, and brain was observed in a 4-month-old girl at autopsy. The patient was admitted to the hospital because of fever, rapid respiration, and anorexia. She had an elevated white blood cell count and icteric plasma with a total bilirubin of 24 mg/100. Bile was present in the urine and urobilinogen in the stool. A liver biopsy revealed hepatitis with cytomegalic inclusions. The patient was discharged after a general improvement in her condition, but she died at home after a vomiting episode. (4 refs.) - *L. S. Ho.*

University of Tennessee College of Medicine
Memphis, Tennessee 38101

67 McCRACKEN, GEORGE H., JR.; SHINEFIELD, HENRY R.; COBB, KATHERINE; RAUSEN, AARON R.; DISCHE, M. RENATA; & EICHENWALD, HEINZ F. Congenital cytomegalic inclusion disease: A longitudinal study of 20 patients. *American Journal of Diseases of Children*, 117(5):522-539, 1969.

The natural history of cytomegalic inclusion disease (CID) was studied in 20 infants in whom the virus was isolated shortly after birth. Hepatosplenomegaly was the most common clinical finding, and thrombocytopenia and central nervous system (CNS) abnormalities (7 microcephalics) were frequently noted. Three of the children died (2 with CNS damage), 7 were SMR, and 2 were mildly MR on follow-up which ranged to 9 years. Infantile CNS involvement was the only finding in infancy associated with MR later in life. Congenital anomalies were noted (2 children had cardiac defects, and 5 showed evidence of the "first arch syndrome"). Virus was excreted for many months in most patients, but neither the duration of excretion nor the antibody titer were correlated with outcome. Immunoglobulin studies showed elevated IgM and IgA in all cases. The clinical features of CID (including malformations) are similar to other congenital infections, and viral isolation is essential in making the correct diagnosis. (32 refs.) - *E. L. Rowan.*

University of Texas Southwestern Medical School
Dallas, Texas 75235

68 FELDMAN, ROGER A. Cytomegalovirus infection during pregnancy: A prospective study and report of six cases. *American Journal of Diseases of Children*, 117(5):517-521, 1969.

Examination of 185 women on their first prenatal visit to an outpatient clinic revealed that 6 (3%) were excreting a cytomegalovirus in their urine. Each of these women was in

the second trimester when first seen. The antepartum course was uneventful in all 6, and each delivered in the hospital, at term, without major complications. Only 2 of the 6 infants demonstrated viremia within the first 6 weeks of life; neither of these had abnormal physical findings, and both were developing normally. Maternal cytomegalovirus infection without fetal damage is apparently quite common, and the factors which lead to fetal damage are as yet undetermined. (13 refs.) - *E. L. Rowan.*

National Communicable Disease Center
Atlanta, Georgia 30333

69 WHITE, LON R.; SEVER, JOHN L.; & ALEPA, F. PAUL. Maternal and congenital rubella before 1964: Frequency, clinical features, and search for isoimmune phenomena. *Journal of Pediatrics*, 74(2):198-207, 1969.

A survey on maternal and congenital rubella indicated that the frequency of the disease during nonepidemic periods (1959-1964) is 4 to 8 cases/10,000 pregnancies, that the expanded congenital syndrome observed during the outbreak in the spring of 1964 did occur prior to 1964, and that this syndrome can not be attributed to supervirulent virus. The increase of postpartum maternal anti-IgG antibodies is probably a direct effect of the infection rather than a secondary isoimmunization to fetal immunoglobulins. This increase was associated with the highest levels of rubella complement fixation antibody and was more common with infections late in pregnancy. These anti-IgG antibodies are probably 19S antibodies and have no effect on the development of immunological competence of the infants. Cord serum IgM was increased in 3 of 9 cases examined. (25 refs.) *L. S. Ho.*

National Institutes of Health
Bethesda, Maryland 20014

70 KLEINMAN, DAVID S.; POOLE, BELLE DALE; BECKMAN, GWENDOLYN M.; HAMMERSLY, MARJORIE F.; & *MONTGOMERY, THEODORE A. Rubella: Some comments on the 1964-65 epidemic in California. *California Medicine*, 109(10): 279-285, 1968.

Records of 5 Los Angeles agencies (a hearing and speech center, 3 hospitals treating ocular and cardiac disorders, and a program which provided visiting teachers for the blind) were reviewed to determine the frequency and extent of maternal rubella damage to children and the adequacy of agencies which care for these handicapped children. Of 151 cases with rubella as the presumed cause of defects, 70 had 2 or more malfunctions--cardiac (60), visual (55), or hearing (43). Deafness (65) was most prevalent in those with only one defect. Month and year of birth curves showed a positive correlation between the rubella epidemics of 1964 and 1965 and the incidence of birth of defective children. Thirteen mothers were interviewed to determine the availability and adequacy of services for the multiply handicapped. Most had problems with agencies (5 had transportation and appointment difficulties, 4 received inadequate educational materials, 4 received conflicting professional advice, 3 were given no information on Crippled Children Services, 3 received no long-range planning advice). Three children were not accepted by other family members. Community services for the handicapped should be consolidated and made available at an earlier age; facilities for early detection of rubella epidemics and exposure of pregnant women should be established. On the basis of past studies, the epidemics of 1964 and 1965 are estimated to have caused defects in 750-1,500 infants born 6-9 months after the epidemics. Due to the limited sample and the non-random method of selection, the results of this survey are not conclusive. (4 refs.) - *E. F. MacGregor.*

*2151 Berkeley Way
Berkeley, California 94704

71 MICHAELS, RICHARD H.; & KENNY, FREDERIC M. Postnatal growth retardation in congenital rubella. *Pediatrics*, 43(2):251-259, 1969.

Postnatal growth patterns in congenital rubella and endocrine studies in infants with growth stunting suggest that the rubella virus suppresses growth during congenital infection by direct action on the tissue cells rather than by effects on the endocrine glands. Sixteen infants were followed for the first 15 to 33 months of life. Measurements were made at monthly intervals during a combined virologic and immunologic study of this condition. Seven infants remained infected for the first 1 to 4 months, and 3 remained infected for 24 to 30 months. The classic major defects of congenital rubella were well represented. In the pattern of growth, none of the 16 infants exceeded the normal mean for weight during the first 2 years of life, and only 2 exceeded the normal

mean for length. The usual pattern was a growth rate parallel to that of normal infants during the first 2 years of life, although often at a much lower level. The acceleration of growth near the time of termination of infection in 3 infants suggests that growth may have been suppressed by continued infection with rubella. There was a good correlation between height, age, and duration of infection for 5 infants. There was a greater growth retardation for the males than the females. Infants whose mothers had rubella during the first 8 weeks of gestation showed more growth retardation than infants whose mothers had rubella after this time. No infant had signs of hypothyroidism, and the thyroid dysfunction could not be shown to be responsible for growth failure in congenital rubella. Growth hormone tests were normal, and there was no abnormality of the pituitary-adrenal axis. (31 refs.) *F. J. McNulty.*

Children's Hospital of Pittsburgh
Pittsburgh, Pennsylvania 15213

72 RAWLS, WILLIAM E.; DESMYTER, JAN; & MELNICK, JOSEPH L. Serologic diagnosis and fetal involvement in maternal rubella: Criteria for abortion. *Journal of the American Medical Association*, 203(9):627-631, 1968.

The employment of serological diagnosis in determining rubella viral involvement in the fetus was studied in order to establish criteria for abortion in cases of maternal rubella. Specimens from 23 pregnant women exposed to or having had a rubella-like illness were tested by laboratory examination. Serologic evidence of rubella was not found in the 7 exposed women, and there were no clinical illnesses in these women. There was a fourfold rise in antibody titer in 13 of 16 women who had had the clinical rubella-like illness. Ten of these women had therapeutic abortions, and rubella virus was found in 9 of the 10 abortuses. Rubella virus also was found in the throat of one infant whose mother had had first trimester rubella. Accurate serological diagnosis necessitates taking a serum sample early in the course of the disease. No single procedure should be considered reliable for a definite indication for an abortion. In ideal circumstances, a fourfold rise in antibody titer which has been determined by 2 or 3 methods should be used before the decision is made to abort. Laboratory analysis which proves maternal rubella in the first trimester appears to be an accurate technique in predicting fetal infection. The fact that the number of fetal cells infected by rubella virus is small supports the hypothesis that "viral persistence in congenital rubella results from *in utero* establishment of clones of infected cells." (25 refs.) - *B. Bradley.*

Baylor University College of Medicine
Houston, Texas 77025

73 JACK, IAN; & GRUTZNER, JOCELYN. Cellular viraemia in babies infected with rubella virus before birth. *British Medical Journal*, 1(5639):289-292, 1969.

Rubella virus was isolated from the blood of 10 congenitally infected babies (CA 1 to 196 days). Six of the infants subsequently died. Cell cultures used to isolate the virus were rabbit kidney cells and monkey kidney epithelium tissue. Leukocytes, whole blood, and blood plasma were tested; in some cases, virus was isolated from the blood while other tissues were negative. Additional study is needed to determine if the virus found in these cases represents persistence of virus in long-lived peripheral leukocytes or if the virus is maintained in localized infections at bone marrow production centers. This could explain the co-existence of chronic infection and neutralizing antibody in babies. Another theory is that there is a deficiency of cellular immune competence and that impairment of the lymphoid system function is not the cause of the postnatal viral persistence. The role of an intracellular location of virus in the fetal immune response in the rubella syndrome needs elucidation. (31 refs.) - *E. Hays.*

Royal Children's Hospital
Parkville, 3052, Australia

74 MICHAELS, RICHARD H. Immunologic aspects of congenital rubella. *Pediatrics*, 43(3):339-350, 1969.

The immune response and other aspects of congenital rubella were studied in 16 infants from Pittsburgh. These infants represented the severe form of the disease, and tests were made each month for the presence of rubella virus. The infants were considered well when rubella virus could no longer be detected in throat or urine samples after 2 to 3 months. Since maternal antibodies are present during the neonatal period, studies were made of the immune response during the latter part of the first year of life. Serological studies were made to determine what type of antibodies and what factors contributed to the high level of circulating antibodies. The drug rimantadine was used in the

test to reduce rubella virus titers, but no definite results for or against the drug could be detected; however, in other reported cases the drug produced side effects. Immunoglobulin deficiency was not a problem. During the infective period of the rubella virus, immunoparesis occurred which included both humoral and cellular factors. These studies also showed that the male infant excreted the virus longer and, therefore, was the most severely affected. (43 refs.) - *E. Hays.*

Children's Hospital of Pittsburgh
Pittsburgh, Pennsylvania 15213

75 Who should get rubella vaccine first, women or children? *Medical World News*, 10(16):6-8, 1969.

British and American medical authorities have taken differing positions on the target groups for vaccination with the new rubella vaccines. The National Communicable Disease Center at Atlanta and the American Academy of Pediatrics recommend that the prime target population should be school-age children. The object is to eliminate the disease in the community by developing herd immunity, a technique that has proved successful with measles and polio. If post-pubertal women are vaccinated, they should be told to avoid pregnancy for 60 days. The British, on the other hand, report no attempt will be made to vaccinate children until more is known of the duration of the vaccine-induced immunity. Instead, they are attempting to stop fetal infection directly by vaccinating women of child-bearing age. (No refs) - *W. J. Klein.*

76 VAHERI, A.; VON BONSDORFF, C. -H.; VESIKARI, T.; HOVI, T.; & VAANANEN, P. Purification of rubella virus particles. *Journal of General Virology*, 5(1):39-46, 1969.

Rubella virus was purified in suspended BHK 21/13 S cells to a preparation that contained about 10^{10} p.f.u./ml. Density gradient centrifugation was effective in removing impurities from the virus preparation. All rubella infectivity was recovered in one peak at a density of 1.17g/ml. This area of maximal p.f.u. coincided with a sharp band, visible by the naked eye under dark field illumination, and with the presence of virus-like particles found in electron-microscopy. The control preparation showed none of these characteristics. To avoid deformity and disintegration of the purified rubella preparations, some preparations were prefixed with glutaraldehyde. After the standard purification procedure, these particles had a mean diameter of 61 mnm (50-73 nm range), which was 10 nm less than the unfixed particles. The purified rubella preparation, when treated with deoxycholate, had disintegrated particles within 20 seconds and totally broken particles after 2 minutes. As with spontaneously disrupted particles, these particles showed no symmetrical inner structure. (21 refs.) *F. J. McNulty.*

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77 BROWN, T.; HAMBLING, M. H.; & ANSARI, B. M. Rubella-neutralizing and haemagglutinin-inhibiting antibodies in children of different ages. *British Medical Journal*, 4(5678):263-265, 1969.

Rubella neutralization and hemagglutinin-inhibition tests were used to determine the incidence of rubella antibodies in the sera of 235 children and adolescents aged one month to 20 years. The tests showed good agreement in the detection of rubella antibodies resulting from acute infection. Maternal antibodies became undetectable within 6 months after birth. The proportion of children possessing rubella antibodies was found to be about 23% by the age of 5 years, rising sharply to 80% in the 6-12 years age group and 83% in the 13-20 years age group. Results indicate that the incidence of rubella infection may be higher in females than in males. The correlation between statements concerning a past history of rubella and immune status was poor, particularly in the older age groups. Any policy for vaccination against rubella must take into account the difficulties of identifying nonimmune persons in a large population. (15 refs.) - *Journal summary.*

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78 THOMSSEN, R.; & LAUFS, R. Inhibition of rubella virus haemagglutin in human serum. *German Medical Monthly*, 14(9):440-444, 1969.

Hemagglutination-inhibiting activities against the rubella virus in human serum were fractionated and characterized by several

techniques: sedimentation in a saccharose gradient, gel filtration, centrifugation, electrophoresis, and immune and other precipitation methods. The acquired hemagglutination-inhibiting activity is correlated with the neutralizing activity and appears to be bound to IgG-globulins; whereas, the non-neutralizing activity absorbable with kaolin is bound to β-lipoproteins of density 1,05 g/cm. The titer of hemagglutination-inhibiting antibodies to the rubella virus was determined in 576 serum specimens obtained during 1965-1967 from women aged 18 to 38 years: 85-88% of the specimens had antibody titers of 1:8 and 1:>8. The mean titer in the specimens containing antibodies was 1:1,024. (6 refs.) *Journal summary*.

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34 Gottingen, Germany

79 WEIBEL, ROBERT E.; STOKES, JOSEPH, JR.; BUYNAK, EUGENE B.; WHITMAN, JAMES E., JR.; LEAGUS, M. BERNICE; & *HILLEMAN, MAURICE R. Live attenuated rubella virus vaccines prepared in duck embryo cell culture. *Journal of the American Medical Association*, 205(8): 553-558, 1968.

Two duck embryo cell culture rubella virus vaccines were found effective on large scale testing. The HPV-77 virus was given to 265 susceptible (seronegative) children in an open community, and 97% of these developed rubella antibody. None of 262 susceptible sibling contacts and none of 34 susceptible mothers showed seroconversion. Merck level-B strain virus was given to 33 susceptible children in an institution for the MR, and all showed seroconversion. None of the 14 controls became infected. The mean antibody titer following vaccination was higher in the Merck strain (1:148.3) than in the HPV-77 virus (1:53.2). Both vaccines appear practical for routine application. (6 refs.) *E. L. Rowan.*

*Merck Institute for Therapeutic Research
West Point, Pennsylvania 19486

80 BUYNAK, EUGENE B.; WEIBEL, ROBERT E.; WHITMAN, JAMES E., JR.; STOKES, JOSEPH, JR.; & HILLEMAN, MAURICE R. Combined live measles, mumps, and rubella virus vaccines. *Journal of the American Medical Association*, 207(12):2259-2262, 1969.

The recent development of a number of vaccines for specific viral infections raises the question of the feasibility of combined vaccines. Studies were made of children (CA 3 to 10 yrs) who were tested with single, bivalent, and trivalent doses of viral vaccines. Moraten measles, Jeryl Lynn mumps, and HPV-77 duck embryo rubella vaccines were employed in a single injection, and antibody responses were as good as if given alone. Moraten measles and Jeryl Lynn mumps vaccine combined gave a similar antibody response; however, the antibody response was less with the substitution of Enders measles in the Moraten measles and mumps vaccine. The combination of Moraten measles, mumps, and Merck C level rubella vaccine gave a poor result. The infectivity and stability of these vaccines after drying and re-hydration should permit their use in routine practice. Only small amounts of the virus are required for immunization with the vaccines, and eventually these diseases may be eliminated wherever people can be reached. (19 refs.) *E. Hays*.

Merck Institute for Therapeutic Research
West Point, Pennsylvania 19486

81 SETO, DEXTER S. Y.; & CARVER, DAVID H. Topics in clinical medicine: New vaccines against viral diseases: Mumps, rubella, and measles. *Johns Hopkins Medical Journal*, 124(4):231-237, 1969.

Recently developed measles, mumps, and rubella vaccines fulfill the characteristics of a satisfactory antiviral vaccine; they protect against a debilitating disease, they can be grown and attenuated in culture, they induce permanent immunity, they are not contagious to contacts, and they are free of other viruses. The attenuated strain of Edmonston measles vaccine is most widely used and is contraindicated only in pregnancy, malignancy, immunosuppressive therapy, severe febrile illness, recent γ-globulin administration, and egg sensitivity. The HPV-77 strain of rubella virus vaccine is available on a clinical trial basis and apparently fulfills all the criteria for acceptability. The Jeryl Lynn B-level mumps vaccine is commercially prepared and carries the same contraindications as the Edmonston measles vaccine. (18 refs.) - *E. L. Rowan.*

No address

82 LEPOW, MARTHA L.; & NANKERVIS, GEORGE A. Eight-year serologic evaluation of Edmonston live measles vaccine. *Journal of Pediatrics*, 75(3):407-411, 1969.

In 13 children who had had natural measles and 32 who had received the Edmonston vaccine,

hemagglutination-inhibition (HI) antibody persisted more than 8 years, and there was no evidence of reinfection by the natural virus in either group. Although there was a gradual decline in antibody titer during the 7 years, the titer of the majority of the Ss remained between 20 and 40. After the first year, most of the Ss had an antibody titer between 20 and 40. The absolute titer of those who had had the natural disease was from 2 to 4 fold higher than those who had not, and the administration of live, attenuated vaccine to these resulted in no significant change in titer one year later. Geometric mean HI antibody titers of each group reached comparable levels and remained fairly constant. Lifelong protection against natural measles appears to be within the realm of possibility. (10 refs.) - *V. G. Votano.*

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83 Measles and panencephalitis. *British Medical Journal*, 2(5599):189-190, 1968. (Editorial)

Subacute sclerosing panencephalitis (SSP) is probably due to a slow infection with measles virus. Suggestive evidence includes the presence of particles morphologically similar to the virus in the central nervous system (CNS), the presence of measles antigen, and high levels of measles antibody in patients with SSP. There is also evidence of invasion of the CNS by measles without overt encephalitis. Isolation of the measles virus from nervous tissue in patients with SSP will incontrovertibly confirm this hypothesis. (31 refs.) *E. L. Ravan.*

84 STRUSSBERG, S.; WINTER, S.; FRIEDMAN, A.; BENDERLY, A.; KAHANA, D.; & FREUNDLICH, E. Notes on mumps meningoencephalitis: Some features of 199 cases in children. *Clinical Pediatrics*, 8(7):373-374, 1969. (Commentary)

Observations for mumps meningoencephalitis were made on 199 children (CA 1 to 14 yrs) in North Israel between the years 1960 to 1967. Incidences were higher in the month of May (most cases occurred between March and July), in the 5 to 9 year-old group (60%), and in boys (73%). There were no deaths recorded, nor were there any neurological sequelae noted. Over 50% of the cases of aseptic meningitis in North Israel in 1959 were found to have the mumps virus as the etiological agent. (4 refs.) - *E. Hays.*

Rothschild Hospital
Haifa, Israel

85 PICKARD, ROBERT E. Varicella pneumonia in pregnancy. *American Journal of Obstetrics and Gynecology*, 101(4):504-508, 1968.

A case of fatal varicella pneumonia in a pregnant woman illustrates the need for medical therapy for susceptible pregnant women exposed to chickenpox. The reported incidence of varicella pneumonia has increased since 1956 and about 10% of all reported cases of varicella pneumonia are found in pregnant women. Of 18 pregnant women with varicella pneumonia, 8 have died; this is a 44% mortality rate for this disorder during pregnancy while the rate is 17% for adults in general. Abortions, prematurity, and congenital malformations are also risks associated with this disease. Oxygen and assisted ventilation are considered the most effective treatments. Although γ-globulin does not prevent chickenpox, it does seem to decrease the severity of the disease. The benefits of the use of steroids in treatment of varicella pneumonia remain in question. (80 refs.) *B. Bradley.*

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86 LANE, J. MICHAEL; RUBEN, FREDERICK L.; NEFF, JOHN M.; & MILLAR, J. D. Complications of smallpox vaccination, 1968: National surveillance in the United States. *New England Journal of Medicine*, 281(22):1201-1208, 1969.

In 1968, 572 persons in the United States had confirmed vaccination complications. Of these, 82.5% had received Vaccinia Immune Globulin. Sixty-eight percent of the patients were primary vaccinees, 7% were revaccinees, 20% acquired vaccinia not by vaccination but by contact, and 5% had unknown histories of vaccination. There were 9 deaths: 4 caused by postvaccinial encephalitis, 4 associated with vaccinia necrosum, and one caused by eczema vaccinatum. There were 74 complications and one death/1,000,000 primary vaccinations. Morbidity and mortality rates

were highest for infants, with 112 complications and 5 deaths/1,000,000 primary vaccinations. Eczema vaccinatum was more severe for contacts than for vaccinees. Although the risk with revaccination is less than a tenth that with primary vaccination, vaccinia necrosum develops in patients with immunologic disorders whether or not they have been previously vaccinated. These estimates, based on surveillance, must be considered minimal. (18 refs.) - *Journal abstract.*

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Atlanta, Georgia 30333

87 PARTRIDGE, J. W.; & MILLIS, ROSEMARY R. Systemic *Herpes simplex* infection in a newborn treated with intravenous idoxuridine. *Archives of Disease in Childhood*, 43(229): 377-381, 1968.

An infant girl acquired a systemic *Herpes simplex* infection which became clinically apparent (skin vesicles and fever) on the fourth day of life. After the virus was isolated, idoxuridine was given intravenously. Clinical improvement was noted as chest lesions cleared, electrocardiographic abnormalities resolved, and the infant became more alert. No side effects of the deoxyribonucleic acid antagonist were noted. The baby relapsed after cessation of treatment and died at age 28 days. Despite its toxicity, idoxuridine must be used vigorously to combat an otherwise fatal infection. (4 refs.) - *E. L. Rowan.*

Addenbrooke's Hospital
Cambridge, England

88 SOUTH, MARY ANN; TOMPKINS, WAYNE A.F.; MORRIS, C. RICHARD; & RAWLS, WILLIAM E. Congenital malformation of the central nervous system associated with genital type (type 2) herpes virus. *Journal of Pediatrics*, 75(1):13-18, 1969.

A male infant is described who had micrencephaly, intracranial calcifications, microcephaly, retinal dysplasia with microphthalmus, and vesicular skin lesions from which *Herpes simplex* virus was isolated. Antigenic and biologic techniques revealed that this isolate was *Herpes simplex* type 2 (genital type), and antibody to type 2 herpes virus was found in the mother and child. The virus appears to have been transmitted transplacentally to the fetus early in gestation (thus causing the congenital anomalies). A previously reported case of similar malformations was also associated with herpes virus isolation from skin lesions. These 2 cases suggest that the herpes virus has a neurotropic, teratogenic potential. (14 refs.) *M. G. Conant.*

Baylor University College of Medicine
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89 DeLEMOS, ROBERT A.; & *HAGGERTY, ROBERT J. Corticosteroids as an adjunct to treatment in bacterial meningitis: A controlled clinical trial. *Pediatrics*, 44(1): 30-34, 1969.

Methylprednisolone, given as an adjunct to antibiotic therapy in children suffering from meningitis, did not significantly improve the mortality, morbidity, nor long-term sequelae. In a double-blind test, 54 children received methylprednisolone and 63 received a placebo solution. Follow-up evaluation between 6 months to 4 years after the acute illness showed that a large percentage of the steroid-treated children had neurological sequelae. The significance of this observation is in question since these children were more severely ill than the placebo group. Adrenal steroids do not have any apparent beneficial effect in childhood meningitis. (12 refs.) *L. S. Ho.*

*University of Rochester School of Medicine and Dentistry
Rochester, New York 14620

90 HAYNES, RALPH E.; CRAMBLETT, HENRY G.; & KRONFOL, H. J. Echovirus 9 meningoencephalitis in infants and children. *Journal of the American Medical Association*, 208(9): 1657-1660, 1969.

Echovirus 9 was recovered from the cerebrospinal fluid (CSF) of 196 children in whom aseptic meningoencephalitis was diagnosed during May 19, 1968 to September 30, 1968. The CSF leukocyte count was about 1,000/cu mm in 129 patients while the CSF protein content was between 100 and 171 mg/100 ml in 9 of the patients. The CSF glucose was normal. The virus was isolated from a single CSF specimen in 66 of 76 patients; whereas, it was positive in one out of 4 throat and anal specimens in 43 of 76 patients. Therefore, CSF seems to be the best source for the virus. Although the disease is usually mild, one patient died. (11 refs.) - *L. S. Ho.*

561 South 17th Street
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91 DUMA, RICHARD J.; FERRELL, HAROLD W.; NELSON, E. CLIFFORD; & JONES, MURIEL M. Primary amebic meningoencephalitis. *New England Journal of Medicine*, 281(24):1315-1323, 1969.

A healthy 15-year-old girl suffered fatal meningoencephalitis due to free-living amebas identified as *Naegleria*. The organisms were cultured from cerebrospinal fluid, brain, lung, liver and spleen, and were seen in heart blood. Acute, diffuse myocarditis complicated by pulmonary edema occurred and was believed to be related to the infecting amebas. Primary amebic meningoencephalitis is being recognized with increased frequency and appears to be worldwide and capable of producing epidemics. Patients often give a history of swimming in fresh or brackish water, and the portal of entry may be the nasal mucosa. By means of appropriate technics, isolation of free-living amebas is relatively simple. All isolates (Florida, Virginia, Australia and Czechoslovakia) have been *Naegleria*. The disease appears to be universally fatal and at present without promise of therapy. (31 refs.) - *Journal abstract*.

Medical College of Virginia
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92 JENSEN, KLAUS; RANEK, LEO; & ROSDAHL, NILS. Bacterial meningitis: A review of 356 cases with special reference to corticosteroid and antiserum treatment. *Scandinavian Journal of Infectious Diseases*, 1(1):21-30, 1969.

Three hundred and sixty-five Ss were treated for bacterial meningitis from 1960 to 1965, and in general, the incidence of bacterial meningitis remained the same as that found in the years 1949 to 1959. The mortality in bacterial meningitis fell from more than 90% to 20% with the introduction of more advanced antibacterial therapy. The overall mortality rate of 11% was the same in both series; the greatest mortality rate was in Ss 60 years of age or over. Pneumococcal meningitis, meningococcal meningitis, and influenzal meningitis were most commonly found. Other infecting organisms, while rare, developed in patients with pre-existing debilitating diseases, and usually these patients had a poor prognosis. A combination of penicillin, sulfonamide, and streptomycin was used until the infecting agent was identified. Treatment was then changed to combat the specific organism. Corticosteroid treatment was used to prevent neurological sequelae in pneumococcal meningitis. Antiserum was tried and was discontinued when cases of severe allergic reaction appeared. The use of chloramphenicol and sulfonamide in *Haemophilus influenzae* meningitis is suggested instead of the presently used streptomycin and sulfonamide therapy. Changing etiological patterns from the development of resistant strains will probably necessitate adaptation of new therapies. (31 refs.) - *E. Hays*.

Blegdamshospitalet
Copenhagen, Denmark

93 FEIGIN, RALPH D.; SAN JOAQUIN, VENUSTO; & MIDDELKAMP, J. NEAL. Purpura fulminans associated with *Neisseria catarrhalis* septicemia and meningitis. *Pediatrics*, 44(1): 120-123, 1969.

A 6-month-old Caucasian male with an abrupt onset of purpura fulminans was found to have *Neisseria catarrhalis* organisms in the blood, cerebrospinal fluid, and bone marrow. The boy was premature (30 weeks gestation) with a birth-weight of 3 lbs 8 oz and no neonatal distress. Subsequent growth and development were normal. He developed coryza 2 weeks prior to admission, diarrhea 5 days prior to admission and fever and vomiting 2 days prior to admission. Purpuric lesions developed on day of admission. Laboratory results showed low hemoglobin, hematocrit, and prothrombin times. Lumbar puncture showed increased pressure and 9 white cells. Cultures of spinal fluid, blood, and bone marrow grew *Neisseria catarrhalis* on the fourth day. Ampicillin (250 mg/kg/day) and chloramphenicol succinate (100 mgm/kg/day) were given intravenously, and the patient recovered with no apparent sequelae. Nineteen cases of meningitis from *Neisseria catarrhalis* are noted in the literature with 9 deaths. Twelve of these cases were in pediatric age groups, and all were below 6 years of age. (19 refs.) *W. J. Klein*.

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94 CALLICOTT, JOSEPH H., JR.; NELSON, E. CLIFFORD; JONES, MURIEL M; DOS SANTOS, JOAO G.; UTZ, JOHN P.; DUMA, RICHARD J.; & MORRISON, JOSEPH V., JR. Meningoencephalitis due to pathogenic free-living amoebae: Report of two cases. *Journal of the American Medical Association*, 206(3):579-582, 1968.

Of 357 Ss studied, only 2 had meningoencephalitis from free-living amebas. A 27-year-old male who had been swimming in a freshwater pond complained of a severe headache which was unrelieved by analgesics. He exhibited bizarre behavior, restlessness, and subsequent stupor. After a generalized

seizure, he was brought to a hospital where examination of an unstained preparation of cerebrospinal fluid revealed motile amebas. Twenty-three hours later the patient died despite vigorous drug therapy. Necropsy findings were limited to the central nervous system; the brain was swollen and the leptomeninges, brain-stem, and cerebellum were hemorrhagic. Amebas were identified in all inflamed areas. An 8-year-old boy who had been playing in freshwater pools developed a stiff neck, fever, and abdominal pain. He received ampicillin sodium 200 mg/kg/day and improved rapidly. Amebas were also cultured from his cerebrospinal fluid. This boy's illness was atypical in that no encephalitis was found, normal cerebrospinal fluid protein was present, and improvement with ampicillin treatment occurred. Additional factors besides swimming in fresh water may be involved. (14 refs.) - *V. G. Votano.*

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95 CASPARY, R. E. Demyelinating diseases and allergic encephalomyelitis. A comparative review with special reference to multiple sclerosis. In: Cumings, John N,; & Kremer, Michael, eds. *Biochemical Aspects of Neurological Disorders: Third Series*. Oxford, England, Blackwell Scientific Publications, 1968, Chapter 4, p. 44-61.

Experimental allergic encephalomyelitis (EAE) which can be produced in many animal species by injections of central nervous system tissue has many morbid anatomical features similar to demyelinating disorders in man. EAE can also be induced with portions of an animal's own brain--substantiating the theory of auto-allergy in the etiology of demyelinating disorders. The encephalitogenic factor is probably a small basic polypeptide with a molecular weight of 5,000 and may be bound to other constituents of the central nervous system. In monkeys with EAE, the γ-globulin is increased in the cerebrospinal fluid as it is in 50 to 60% of cases of multiple sclerosis. Attempts to find immunoconglutinin (which is increased in known autoimmune diseases such as Hashimoto's thyroiditis and rheumatoid arthritis) have failed in both EAE and human multiple sclerosis. Sera from the experimental disease and from multiple sclerosis can cause demyelination of nervous tissue in culture; however, this myelotoxicity is not specific to multiple sclerosis. Demyelinating activity is found in the sera of 60% of the cases of motor neurone disease, in 50% of the cases of general paralysis of the insane, and in 24% of the cases of normal controls. Whether this demyelinating activity is due to an antigen-antibody reaction awaits further evidence. (88 refs.) - *L. S. Ho.*

96 KIBLER, ROBERT F.; SHAPIRA, RAYMOND; MCKNEALLY, SARAH; JENKINS, JULIA; SELDEN, PAMELA; & CHOU, FRANK, Encephalitogenic protein: Structure. *Science*, 164(3479): 577-580, 1969.

Amino acid sequences of encephalitogenic proteins from bovine cord and rabbit brain are reported. The bovine protein contains 45 residues. The rabbit protein is identical except for 2 isopolar substitutions, a dipeptide and amino acid deletion. Analysis of this protein and a 140-residue myelin basic protein indicates that the smaller protein is a portion of the larger encephalitogen. The larger myelin protein contains at least 2 encephalitogenic sites. (13 refs.) - *Journal abstract.*

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97 AMOURETTI, M. La leuco-encephalite sclerosante subaigue (Subacute sclerosing leukoencephalitis). *France Medicale*, 32(8):339-346, 1969.

The main clinical features of subacute sclerosing leukoencephalitis (SSL) are mental deterioration, periodic abnormal movements, and decerebrate rigidity. The EEG pattern is characteristic and electrophoresis of the CSF shows an increased concentration of γ-globulins. SSL probably has a viral etiology, but the exact mechanism is still unknown. SSL can be distinguished from Schilder's disease by the characteristic EEG pattern; however, differential diagnosis from Dawson's inclusion encephalitis and Pette-Doring panencephalitis is more difficult. There is no effective treatment for SSL. (1 ref.) *M. G. Conant.*

No address

98 JABBOUR, J. T.; GARCIA, JULIO H.; LEMMI, HELIO; RAGLAND, JAMES; DUENAS, DANILO A.; & SEVER, JOHN L. Subacute sclerosing panencephalitis: A multidisciplinary study of eight cases. *Journal of the American Medical Association*, 207(12):2248-2254, 1969.

In a period of 2 years, 8 cases of subacute sclerosing panencephalitis (SSPE) were found

in an area surrounding Memphis; this is an unusually high incidence of cases for one area. The families of the patients were studied for epidemiological factors related to the disease. Patients were tested by various methods such as electroencephalography, light- and electron-microscopy of brain tissue, measles antibody study, and protein electrophoresis studies of blood serum and cerebrospinal fluid. Four stages of the disease were listed with the associated symptoms and durations. The etiological agent in the patients in this area appears to be the measles virus. (18 refs.) - *E. Hays.*

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99 TONDURY, G. The virus as a danger to human embryos. In: Bertelli, A.; & Donati, L., eds. *Teratology*. Amsterdam, Netherlands, Excerpta Medica Foundation, 1969, p. 211-222.

Macroscopic and microscopic examination of 74 embryos from mothers infected with rubella during the first trimester of pregnancy revealed that 50 were more or less severely damaged, and that heart disease with or without derangement of the artial or ventricular septum was the damage most frequently found. The embryo seems to be especially sensitive at 8 to 9 weeks of gestation and becomes involved in the pathologic process *via* infection of the chorion; the high sensitivity of the endothelial cells is the essential prerequisite. Embryonic organs are infected through their blood supply. Present knowledge indicates that only the rubella virus develops a pronounced teratogenic action in man, although in theory every virus may be a teratogenic agent. Examination of 3 fetuses aborted spontaneously as a result of (re)vaccination of the mother revealed a generalized vaccinia in all cases although the fetuses appeared normal in size and development. The virus was seen in the damaged cells, and it appears that there was a continuous cell-virus interaction. (21 refs.) - *M. G. Conant.*

100 Quick K. O. of a deadly brain virus. *Medical World News*, 10(22):15, 1969.

Successful treatment by massive, intravenous doses of idoxuridine in *Herpes simplex* encephalitis is reported by a group at Wayne State University in Detroit. This heroic chemotherapy was possible with a quick diagnostic technique (an adaptation of a test devised by Japanese researchers in 1965 which compares the serum titer of a specific neutralizing antibody with that of complement fixing antibodies to the virus). This test (the CRN/N test) is more reliable for early diagnosis than brain biopsy which may miss 1/2 the cases. When the clinical picture of acute encephalitis appears, idoxuridine therapy is started, and the CRN/N test is made; the test result is available in 3 days which is ample time to prevent any toxic side effects of the drug. (No refs.) - *E. Hays.*

101 NOBLE, J. Les viroses lentes en neurologie (Slow viruses in neurology). *France Medicale*, 32(8):347-351, 1969.

Several diseases are classified as having slow animal viruses as their etiological agents. These include scrapie, maedi, visna, and Aleutian disease of mink. The viruses causing these diseases have in common long incubation periods, slow evolution, and stimulation of an auto-immunization effect. Kuru, a disease which affects inhabitants of New Guinea, is also thought to be caused by a slowly evolving virus. The clinical features include ataxia, motor incoordination, and dementia. The disease is progressive, produces few symptoms for a long time, and progresses rapidly to death when it appears in an infant. Other disorders of the central nervous system which may be caused by slowly evolving viruses include multiple sclerosis, lateral amyotrophic sclerosis, subacute sclerosing leukoencephalitis, and Schilder's disease. (2 refs.) - *M. G. Conant.*

No address

102 BERGOUIGNAN, M. Les encephalites virales - Problemes actuels (Viral encephalitis - Current problems). *France Medicale*, 32(8):327-331, 1969.

The general clinical symptoms of all forms of viral encephalitis include signs of infection, the triad of meningeal syndrome, psychic troubles, and convulsions, and focal signs (paralysis or abnormal movements). The cerebrospinal fluid shows a lymphocyte reaction, and the EEG pattern usually shows diffuse Δ activity. A new classification is proposed in which the forms of encephalitis are divided between those with an exclusively neurological effect and those with a systemic effect. The first category includes encephalitis caused by arboviruses and by enteroviruses (polio, soxsackie, and echo), while the second category includes forms of encephalitis caused by the myxovirus group and by

the herpes virus. Symptomatic treatment is the only form of therapy known. (2 refs.) *M. G. Conant.*

No address

103 ELIZAN, T. S.; AJERO-FROEHLICH, L.; FABIYI, A.; LEY, A.; & SEVER, J. L. Viral infection in pregnancy and congenital CNS malformations in man. *Archives of Neurology*, 20(2):115-119, 1969.

No correlation was found between serological evidence of viral infection during pregnancy and pathologically confirmed central nervous system (CNS) malformation of the infant in 54 mothers with congenitally CNS affected infants and 104 controls. Complement fixation tests were performed on coded serum using 16 viral antigens and hemigglutination-inhibition tests for rubella antibodies. Although these studies failed to indicate a correlation between serological evidence of viral infection and the occurrence of fetal CNS anomalies, certain viruses are known to cause congenital malformations. (21 refs.) *E. Hays.*

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104 BARRETT-CONNOR, ELIZABETH. Infections and pregnancy: A review. *Southern Medical Journal*, 62(3):275-284, 1969.

Although most women complete pregnancy without difficulty, 5% contract infectious diseases. Congenital abnormalities and loss of mother or child, or both, have been reported in infections with rubella, cytomegalovirus, *Herpes simplex*, varicella, variola, poliomyelitis, mumps, Coxsackie virus, influenza, hepatitis, rubeola, toxoplasmosis, and syphilis. Most drugs and antibiotics cross the placenta quite easily; therefore, if possible, all drugs should be avoided during the first trimester of pregnancy. Individual physicians bear a responsibility in deciding what method to use in treating infectious diseases, and no high-risk therapy should be considered. Studies of cord blood for IgM globulins which are present in most infectious diseases may be useful in elucidating the etiological relation between such diseases and syndromes found in mother and infant. (20 refs.) - *E. Hays.*

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105 ZILKHA, K. J. 'Autoimmune' demyelinating disorders. In: Cumings, John N.; & Kremer, Michael, eds. *Biochemical Aspects of Neurological Disorders. Third Series.* Oxford, England, Blackwell Scientific Publications, 1968, Chapter 3, p. 23-43.

Neurological disorders may follow acute infection with measles, smallpox, chickenpox, influenza, rubella, or mumps and vaccinations against rabies, smallpox, tetanus, or influenza. The pathological features are very similar in all these cases. Acute disseminated encephalomyelitis, post- or para-infectious encephalopathy, or acute perivascular myelinoclasis are names used to describe this group of disorders. Congestion and mononuclear cell infiltration of the walls of the small vessels with subsequent edema and hemorrhage during the early stages of the disorders are followed by more intense perivenous infiltration with microglial and lymphocytic cells and subsequent demyelination. The histological picture is reversible in most cases, but a more extensive gliosis can result. Isolation of virus from the brain or spinal cord is exceedingly rare. Immunological disorders have been implicated in the etiology of these disorders. The incidence of post-infectious neurological complications varies from 1/100 for whooping cough to 1/5,000 for rubella. The mortality rate is roughly between 10 to 33.3%. The incidence of post-vaccinial neurological complications shows wide variations. Evidence indicates a smaller mortality rate for primary Jennerian vaccination in adult life than in infancy; therefore, the practice of vaccination against smallpox in the second year of life should perhaps be questioned. (63 refs.) *L. S. Ho.*

106 WOODROW, J. C.; & DONOHOE, W. T. A. Rh-immunization by pregnancy: Results of a survey and their relevance to prophylactic therapy. *British Medical Journal*, 4(5624): 139-144, 1968.

A total of 2,446 Rh-negative primiparae were tested for distribution of fetal cells after delivery and for anti-D antibody if they had delivered an Rh-positive infant. Of the 760 mothers who delivered Rh-positive, ABO compatible infants, 8.5% showed anti-D antibodies 6 months after delivery. The risk of immunization was positively correlated with the number of fetal cells found in maternal circulation after birth. An additional 8.5% showed anti-D antibodies during a second pregnancy after receiving a fetal transfusion during their first pregnancy. Approximately

1% of Rh-positive, ABO incompatible pregnancies resulted in the development of anti-D antibodies. This evidence strongly suggests that the administration of anti-D γ-globulin immediately after delivery would have prevented subsequent isoimmunization. (24 refs.) *E. L. Rowan.*

University of Liverpool
Liverpool, England

107 Aspects of Rh incompatibility. *Canadian Medical Association Journal*, 99(9):421-422, 1968. (Editorial)

Rh iso-immunization may occur dramatically when an Rh-negative woman is transfused in error with Rh-positive blood or when she receives a massive transfusion from her Rh-positive fetus. Anti-Rh plasma was used in the treatment of 2 women receiving incompatible transfusions, but since the plasma was unstandardized, it caused transfusion reactions. Two women who received massive fetal transfusions were treated with anti-Rh γ-globulin intramuscularly. This is becoming the treatment of choice; however, the ratio of antibody to volume of Rh-positive blood received is critical. Gamma globulin is standardized, readily available, does not cause hepatitis, and can apparently be given up to 3 days after transfusion with good results. (10 refs.) - *E. L. Rowan.*

108 DANKS, D. M. Childhood hypoglycaemia, as a sequel of erythroblastosis foetalis. *Acta Paediatricia Scandinavica*, 58(4): 369-373, 1969.

Two siblings who had erythroblastosis at birth developed severe hypoglycemia at 7 and 25 months of age, respectively. The first convulsed almost constantly for over a month and sustained extensive brain damage. The second had 2 hypoglycemic convulsive episodes provoked, in part, by watching others eat. These episodes responded well to intravenous glucose infusion. Hypoglycemia apparently represents a late sequel to erythroblastosis which is known to be associated with deranged carbohydrate metabolism and pancreatic islet cell hyperplasia. (8 refs.) - *E. L. Rowan.*

Royal Children's Hospital
Melbourne 3052, Victoria, Australia

109 ROTH, JOHN B. Immune globulin prophylaxis of erythroblastosis fetalis. *Ohio State Medical Journal*, 65(6):604-605, 1969.

A single dose of 200 mcg of anti-Rh immune globulin given within 72 hours postpartum to mothers who are Rh-negative, who are not sensitized to Rh factor by previous pregnancies or transfusions, and who have delivered an Rh-positive baby, provides effective and antigenically specific protection against Rh immunization. Severe erythroblastosis fetalis is most commonly caused by Rh immunization, but extensive use of anti-Rh immune globulin should reduce and eventually eliminate this disease. The incidence of Rh immunization is reduced from 7% to less than 0.1% by immune globulin prophylaxis. (5 refs.) - *M. G. Conant.*

Children's Hospital
Columbus, Ohio 43205

110 HORGER, E. O., III,; & HUTCHINSON, DONALD L. Intrauterine fetal transfusion in the treatment of erythroblastosis fetalis. *American Journal of Obstetrics and Gynecology*, 103(7):959-966, 1969.

Eighty-three intrauterine fetal transfusions were performed on 59 fetuses of severely sensitized Rh-negative women who were selected primarily on the basis of amniotic fluid pigment level and previous obstetric history. Thirty of the fetuses were stillborn, with 13 dying within 24 hours of transfusion, probably due to the operation; 10 died in the neonatal period, and 19 survived. The transfusions were given first at 19-34 weeks of gestation, and 11 of the 19 surviving infants had only one intrauterine fetal transfusion at approximately 32 weeks' gestation. The most favorable results were seen in fetuses who survived *in utero* until the desired time for induction of labor. (36 refs.) *M. G. Conant.*

University of Pittsburgh School of Medicine
Pittsburgh, Pennsylvania 15213

111 ADENSIO, STANLEY H,; FIGUEROA-LONGO, JUAN G.; & PELEGRINA, IVAN A. Intrauterine exchange transfusion: A new technique. *Obstetrics and Gynecology*, 32(3):350-355, 1968.

A new surgical procedure was explored in which the jugular vein was successfully

catheterized in a fetus of 21 weeks for purposes of intrauterine transfusion. The fetus was surgically delivered and maintained outside the uterus for 34 minutes while the catheter was positioned; he was returned to the uterus and transfused *in utero* with an exchange of 200 ml O-negative citrated packed red cells and the whole procedure occurred without changes in fetal heart tone or EKG. Since the usual techniques for intrauterine transfusion involve the use of blood vessels which are very difficult to cannulate in a fetus of less than 2 pounds, the development of a surgical technique for placement of a catheter in the jugular vein of such a fetus should be valuable. Although the surgery was successful in this case and the fetus showed no distress, a post-surgical accident resulted in fetal death about 45 hours after surgery. (7 refs.) *C. A. Rizvi.*

Caparra Heights Station
Caparra Heights, Puerto Rico 00935

112 SHELTON, LESLIE W., JR. Gangrenous skin defect after intrauterine transfusion. *American Journal of Diseases of Children*, 117(5):593-596, 1969.

At the time of delivery, a large area of gangrene was noted on the anterior abdominal wall of an infant who had received 2 intrauterine transfusions for erythroblastosis fetalis. It appeared that the hypertonic, iodinated contrast medium used for radiographic localization of the fetal abdominal cavity had collected subcutaneously with resultant small vessel thrombosis and/or pressure necrosis. Treatment other than moist saline soaks was not required. The development of transfusion techniques involving less frequent needle placement might prevent this complication. (11 refs.) - *E. L. Rowan.*

Letterman General Hospital
San Francisco, California 94129

113 LUCEY, J. F. Colonic perforation after exchange transfusion. *New England Journal of Medicine*, 280(13):724, 1969. (Editorial)

Colonic perforation and peritonitis in the newborn following exchange transfusion has only recently been recognized. A decision not to use prophylactic antibiotics or unwarranted assumptions about placement of the umbilical vein catheter may be responsible. The whole procedure must be done more carefully, and the true incidence of this complication determined. (3 refs.) - *E. L. Rowan.*

114 NAIMAN, J. LAWRENCE; PUNNETT, HOPE H.; LISCHNER, HAROLD W.; DESTINE, MARIE L.; & AREY, JAMES B. Possible graft-versus-host reaction after intrauterine transfusion for Rh erythroblastosis fetalis. *New England Journal of Medicine*, 281(13):697-701, 1969.

An illness characterized by jaundice, aplastic anemia and striking histiocytic reaction in the bone marrow developed in an 8-week-old infant who survived 3 intrauterine transfusions for Rh erythroblastosis fetalis. Culture of peripheral blood lymphocytes suggested 2 populations of lymphocytes based on differences in Y-chromosome length. One of these resembled that of one of the donors of the intrauterine blood transfusions. In spite of initial hematologic improvement the infant's condition deteriorated, with multiple infections and progressive weight loss until death at 13 weeks of age. Although lymphoid and thymic atrophy were evident at autopsy these changes were considered to reflect atrophy (secondary to a graft-versus-host reaction) rather than primary immunologic deficiency disease. This observation supports recommendations of others that blood intended for transfusion to the fetus be first rendered free of viable lymphocytes. (21 refs.) - *Journal abstract.*

St. Christopher's Hospital for Children
Philadelphia, Pennsylvania 19133

115 SMITH, D. S.; STRATTON, F.; JOHNSON, T.; BROWN, R.; HOWELL, P.; & RICHES, R. Haemolytic disease of the newborn caused by anti-Lan antibody. *British Medical Journal*, 3(5662):90-92, 1969.

The first recorded example of anti-Lan associated with hemolytic disease of the newborn is reported. This emphasizes the importance of screening for atypical antibodies early in pregnancy, even though prophylactic use of anti-D immunoglobulin will eventually reduce the incidence of hemolytic disease due to anti-D antibody. (8 refs.) - *Journal summary.*

National Blood Transfusion Service
Manchester, England

116 CLIFFORD, JOHN H.; MATHEWS, PAT; *REIQUAM, C. W.; & PALMER, H. D. Screening for hemolytic disease of the newborn by cord blood Coombs testing--Analysis of a five-year experience. *Clinical Pediatrics*, 7(8):465-469, 1968.

Direct antiglobulin (Coombs) testing on cord blood of 7,340 unselected infants identified 100% of infants with Rh system isoimmunization (N=65) and 93% of those with ABO hyperimmunization (N=111) before there was evidence of clinical jaundice or neonatal distress. Although such screening does not invalidate the need for clinical observations for jaundice, it does alert personnel to those infants at high risk and allows preparation for transfusion without the stress of an emergency. (10 refs.) - *E. L. Ravan.*

*Presbyterian Medical Center
Denver, Colorado 80218

117 CONNON, AILEEN F. Improved accuracy of prediction of severity of hemolytic disease of the newborn. *Obstetrics and Gynecology*, 33(1):72-78, 1969.

An alternate method for interpretation of the amniocentesis liquor from women with rhesus (Rh) isoimmunization was devised which proved to be more accurate for predicting the state of the *in utero* infant. A mathematical formula using the derivatives of the slope of the curve from any type spectrophotometer was developed. The resulting factor (the Ovenstone factor [OF]) is used for prognostic purposes and is not affected by variations in machines, differences in laboratory conditions, nor observer bias. The OF of 106 Rh-negative women with Rh-antibodies was matched against the standard method for prediction of outcome of the pregnancy. The outcome of pregnancy was classified according to groupings which ranged from unaffected to severely affected. Prediction was 72% correct using the OF method and only 47% correct using the standard method. The OF method was clearly incorrect in only 3% of cases while the standard method was incorrect in 15%. The most marked differences occurred at either end of the spectrum. The OF correctly identified each infant who later proved to be unaffected while the standard method missed 30%. Among the very severely affected infants, the standard method identified only 4 of 22 infants while the OF method identified 16. (27 refs.) - *W. J. Klein.*

University of Adelaide
Woodville, South Australia

118 WALKER, W.; LANDON, M. J.; & Oxley, A. Protein content of liquor amnii in prediction of severity of haemolytic disease of newborn. *British Medical Journal*, 1(5644):605-607, 1969.

Bilirubin and protein levels of the amniotic fluid were measured in 477 cases of Rh isoimmunization; the severity of hemolytic disease was found to correlate with the bilirubin level much better than with the protein level or with the bilirubin/protein ratio. This is in contrast to the findings of other workers; however, this discrepancy can be explained by differences in the estimation of protein levels and the methods of selecting patients for amniocentesis. (11 refs.) - *L. S. Ho.*

University of Newcastle upon Tyne
Newcastle upon Tyne, England

119 STOCKER, F,; TAMINELLI, F.; & De MURALT, G. Die Erythrozyten-Azetylcholinesterase als gutes Kriterium fur die Indikation zur Austrauschtransfusion bei der ABO-Hamolyse der Neugeborenen (Erythrocyte acetylocholinesterase activity as a good criterion for the indication of exchange transfusion in ABO hemolytic disease of the newborn). *Helvetica Paediatrica Acta*, 24(5):448-457, 1969.

Starting from the fact, well known in literature, that newborns with an ABO-hemolysis present a significant decrease of the erythrocyte-acetylcholinesterase-activity, we investigated if the value of this enzyme can be helpful for the indication of the exchange transfusion. Especially we were interested to see if a difference exists between children with ABO-constellation without or only with an insignificant hemolysis needing no exchange transfusion and children who need an exchange transfusion. This question has not been clearly answered until now. Our investigations demonstrate in a clear-cut manner that with the determination of the acetylcholinesterase-activity, the indication of the exchange transfusion can be better made than with the existing criteria; especially, the indication can be made much earlier and the transport to a specialized centre can take place in the right time. In 95% of the cases with a significantly low enzyme activity an exchange transfusion had to be made; in some cases the decreased activity was observed one or 2 days before the exchange transfusion. (14 refs.) - *Journal summary.*

Universitat Bern
Bern, Switzerland

120 MAURER, HAROLD M.; WOLFF, JAMES A.; & LUKE, KOON-HUNG. Phenolsulfonphthalein binding capacity of serum in newborn infants. *Journal of Pediatrics*, 74(2):231-239, 1969.

The phenolsulfonphthalein-binding capacity of serum (which is proportional to serum albumin level and inversely proportional to the serum bilirubin level) was greater in full-term infants than in premature infants and higher in hyperbilirubinemic Ss without hemolytic disease than in those with the condition. Infusion of albumin in 2 premature infants with nonhemolytic hyperbilirubinemia increased the dye-binding capacity (DBC) with only a transient increase of bilirubin. The pH values of the serum did not affect the DBC. (22 refs.) - *L. S. Ho.*

Medical College of Virginia
Richmond, Virginia 23219

121 ODELL, GERARD B.; COHEN, SANFORD N.; & KELLY, PATRICK C. Studies in kernicterus. II. The determination of the saturation of serum albumin with bilirubin. *Journal of Pediatrics*, 74(2):214-230, 1969.

A spectrophotometric method for estimating the saturation of albumin with bilirubin is described which is based on the replacement of bound bilirubin by salicylate. The saturation index is defined as the ratio of the optical change at 460 mμ (after the addition of salicylate) to the optical density (before the addition) after correction for absorption due to nonbilirubin chromogen is made. When this method was applied to 65 jaundiced infants without hemolytic disease, a direct correlation of the saturation index to the concentration ratio of bilirubin to total protein was found. Such a relation was found in 59 cases with proven hemolytic disease after exchange transfusions. This method, therefore, is very useful for selecting infants at risk of bilirubin encephalopathy. (36 refs.) *L. S. Ho.*

Johns Hopkins University School of Medicine
Baltimore, Maryland 21205

122 PRICE, H. V. Hypoglycaemia complicating haemolytic disease of the newborn. *Archives of Disease in Childhood*, 44(234): 248-251, 1969.

Of 86 infants with hemolytic disease of the newborn, 6 were found to have hypoglycemia with blood glucose levels less than 20 mg/100 ml. All had symptoms which were relieved by dextrose infusion. The incidence of hypoglycemia is 4% among hemolytic infants while it is 0.2% for all newborns. Two of the 6 infants died of intracranial hemorrhage and were found to have hypertrophy and hyperplasia of the islets of Langerhans. Frequent Dextrostix testing for hypoglycemia among hemolytic newborns is recommended. (19 refs.) - *L. S. Ho.*

University of Dundee
11 Dudhope Terrace
Dundee, Scotland

123 MILBY, THOMAS H.; MITCHELL, JAMES E.; & FREEMAN, THOMAS S. Seasonal neonatal hyperbilirubinemia. *Pediatrics*, 43(4):601-605, 1969.

The incidence of neonatal hyperbilirubinemia was found to be highest during the fourth quarter of the year in 1963-1966 in a California community hospital. In another hospital located 15 miles away, a tendency toward fourth quarter predominance in 2 of the 3 years investigated (1964-1966) was also noted. The cause of this seasonal variation is not clear. Well-known factors such as prematurity, sepsis, blood-group incompatibility, maternal drug use during pregnancy, and therapeutic agents given to the newborn were excluded, as were a number of possible genetic and metabolic causes. (4 refs.) - *L. S. Ho.*

California Department of Public Health
2151 Berkeley Way
Berkeley, California 94704

124 EGAN, EDMUND A., II.; JULIUS, RICHARD L.; & GESSNER, IRA H. Neonatal hyperbilirubinemia associated with ingestion of maternal blood. *Pediatrics*, 43(5):894-896, 1969.

A female infant with large amounts of maternal blood products in her stools at birth became juandiced at 12 hours of age. Immunological hemolysis, red cell enzymatic defect, sepsis, and hepatic abnormality were excluded as causes of the hyperbilirubinemia. It is suggested that this condition is due to absorption of heme from the ingested maternal blood. (5 refs.) - *L. S. Ho.*

University of Florida College of Medicine
Gainesville, Florida 32601

125 ERTEL, INTA J.; & NEWTON, WILLIAM A. Therapy in congenital hyperbilirubinemia: Phenobarbital and diethylnicotinamide. *Pediatrics*, 44(1):43-48, 1969.

Phenobarbital and diethylnicotinamide were effective in reducing blood bilirubin level in 2 sisters (CA 4 and 10 yrs) with nonhemolytic congenital hyperbilirubinemia. Phenobarbital at 4 mg/kg/day orally reduced the bilirubin levels from 23.6 to 4.8 mg/100 ml in the older child and from 11.6 to 2.4 mg/100 ml in the younger child. Both became anicteric. Diethylnicotinamide at 60 mg/kg/day orally was less effective. Both children remained jaundiced. Both girls showed normal physical and mental development. There was no familial history of jaundice, and no defect in glucuronidation of salicylate and salicylamide was detected in the patients or the parents. The older sister showed lessening of signs of withdrawal since the disappearance of her jaundice. Phenobarbital seems to be a good therapeutic agent for this condition. (23 refs.) - *L. S. Ho.*

Children's Hospital
Columbus, Ohio 43205

126 FELDMAN, MARCUS W.; NABHOLZ, MARKUS; & BODMER, WALTER F. Evolution of the Rh polymorphism: A model for the interaction of incompatibility, reproductive compensation, and heterozygote advantage. *American Journal of Human Genetics*, 21(2):171-193, 1969.

Mathematical and numerical analyses on a more general model for reproductive compensation in Rh incompatibility indicated that overcompensation in the mating of Rh-negative females with Rh-positive heterozygote males can result in a stable polymorphism. This is in contrast to previous models which predicted that compensation can not maintain a stable polymorphism due to heterozygote disadvantage. The present analysis also indicated that a stable polymorphism can be achieved without heterozygote advantage. The gene frequencies at polymorphism equilibria according to this model did not agree with the accepted value. This may be due to factors other than those of incompatibility selection and compensation. (24 refs.) - *L. S. Ho.*

Stanford University
Stanford, California 94305

127 BASHORE, R. A.; SMITH, F.; & SCHENKER, S. Placental transfer and disposition of bilirubin in the pregnant monkey. *American Journal of Obstetrics and Gynecology*, 103(7):950-958, 1969.

Conjugated and unconjugated labeled bilirubin was infused into the fetal or maternal circulation of pregnant rhesus monkeys near term, and sequential samples of fetal and maternal blood, amniotic fluid, and maternal bile were taken. In each of 4 fetal monkeys and 3 mothers infused with unconjugated bilirubin, there was prompt and significant placental transfer of the pigment while only small amounts of conjugated bilirubin were transferred across the placenta. Unconjugated bilirubin readily entered the amniotic fluid from maternal circulation; however, only small amounts were found in the fetal biliary tract (suggesting that normally the placenta is the primary route of disposal of unconjugated bilirubin of fetal origin). No conclusion was reached regarding the route of entry of unconjugated bilirubin from mother to fetus. (17 refs.) - *M. G. Conant.*

University of California School of Medicine
Los Angeles, California 90031

128 GARDNER, WILLIAM A., JR.; & *KONIGSMARK, BRUCE W. Familial nonhemolytic jaundice: Bilirubinosis and encephalopathy. *Pediatrics*, 43(3):365-376, 1969.

A severely jaundiced patient developed normally until 15 years of age; at this age, he deteriorated neurologically. Clinically, his symptoms were similar to infantile kernicterus. Massive generalized deposits of bilirubin were found at autopsy, and it would seem that these large deposits were secondary to the prolonged high blood bilirubin levels. There was no pigment found in the central nervous system but a marked neuronal loss occurred in the thalmus, and a moderate neuronal loss occurred in the putamen, and dentate and red nuclei. The areas involved in infantile kernicterus (the globus pallidus, subthalamic nucleus, and hippocampus) showed only mild or no changes. The lung pathology was suggestive of edema and bronchopneumonia. (20 refs.) - *F. J. McNulty.*

*The Johns Hopkins Hospital
Baltimore, Maryland 21205

129 SOUTH, MARY ANN; COOPER, MAX D.; WOLLHEIM, FRANK A.; & GOOD, ROBERT A. The IgA system: II. The clinical significance of IgA deficiency: Studies in patients with agammaglobulinemia and ataxia-telangiectasia. *American Journal of Medicine*, 44(2):168-178, 1968.

Studies of IgA deficiency in agammaglobulinemia and ataxia-telangiectasia support the hypothesis that IgA is synthesized in plasma cells which are located near the mucous surface; the transport piece (a β-globulin) is synthesized independently in the epithelial cells, and these units are then formed into a composite molecule and are secreted onto the mucosa. The absence of these processes produces susceptibility to infection of the mucous surfaces, particularly the respiratory tract. Among 18 Ss with agammaglobulinemia and 2 with hypogammaglobulinemia, 19 had chronic respiratory tract infections despite intramuscular treatment with γ-globulin. The remaining S was the only one who had significant amounts of IgA in the saliva and did not suffer from pulmonary infections. Among 22 Ss with ataxia-telangiectasia, those (8Ss) who had no detectable salivary IgA showed significantly more severe sinopulmonary disease than those who had IgA in their saliva. The transport piece was found in saliva of every S studied, regardless of the absence or presence of IgA in the serum or saliva. (64 refs.) - *L. S. Ho.*

Baylor University College of Medicine
Houston, Texas 77025

130 ELLISON, GEORGE W. Progressive multifocal leukoencephalopathy (PML). I. Investigation of the immunologic status of a patient with lymphosarcoma and PML. *Journal of Neuropathology and Experimental Neurology*, 28(3):501-506, 1969.

A patient with lymphosarcoma and progressive multifocal leukoencephalopathy (PML) was found to be deficient in conventional immunological responses for delayed hypersensitivity and antibody formation. These results supported the theory that PML occurs in immunologic hypoactivity. Attempts to culture a virus have been unsuccessful; however, electron microscopic data favor the presence of a virus in an infective form. (17 refs.) *L. S. Ho.*

Yale University School of Medicine
New Haven, Connecticut 96510

131 FREEMAN, R. Does Sydney lead in the diagnosis of chronic lead poisoning in children? *Australian Paediatric Journal*, 5(2):124-125, 1969. (Letter)

Lead intoxication is a significant cause of encephalopathy in New South Wales where lead paint was used extensively until 15 years ago. The pediatrician must maintain a high index of suspicion of pica when confronted with gastrointestinal disturbances, ataxia, and encephalopathy. No single screening test is completely reliable and basophilic stippling of red cells, radiographic lead lines, increased urinary coproporphyrin and Δ-aminolevulinic acid, and elevated levels of blood and urinary lead must be sought. Increased case finding reflects increased suspiciousness. (5 refs.) - *E. L. Rowan.*

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22 High Street
Randwick, New South Wales 2031, Australia

132 SCHLAEPFER, WILLIAM W. Experimental lead neuropathy: A disease of the supporting cells in the peripheral nervous system. *Journal of Neuropathology and Experimental Neurology*, 28(3):401-418, 1969.

Experimental lead neuropathy is characterized by coexistant segmental demyelination and Wallerian degeneration, but the relationship of these phenomena is unclear. Eighteen rats were fed a lead acetate solution for from 3 to 18 months and their peripheral nerves and spinal nerve roots and ganglia were then examined. Demyelinating and remyelinating phenomena resulted in various disruptive patterns with widening of nodal interspaces, loss of individual myelin sheaths, and the appearance of thin intercalated myelin sheaths. Wallerian degeneration was characterized by a linear arrangement of irregular osmiophilic droplets along the nerve segment. Increased acid phosphatase activity was an early sign of axonal change. In the dorsal root ganglia there was a proliferation of capsular cells and accumulation of dense bodies (lead) within their cytoplasm. Metabolic alterations of the capsular cells result in degenerative changes in associated neurons. The combination of sensory neuronal degeneration and segmental demyelination may then be explained by a common metabolic lesion to supporting satellite and Schwann cells of the peripheral nervous system. (58 refs.) - *E. L. Rowan.*

Washington University
St. Louis, Missouri 63110

133 LUGO, GUSTAVO; CASSADY, GEORGE; & PALMISANO, PAUL. Acute maternal arsenic: Intoxication with neonatal death. *American Journal of Diseases of Children*, 117(3):328-330, 1969.

A 17-year-old woman in the third trimester of pregnancy ingested a large quantity of rat poison containing inorganic arsenic compounds. Even though 150 mg of dimercaprol was administered approximately 24 hours after ingestion, the mother developed renal failure which eventually responded to hemodialysis. Four days after ingestion she delivered an 1,100 gm infant who died at 11 hours of age. Autopsy revealed hyaline membrane disease, severe intra-alveolar pulmonary hemorrhage, and high concentrations of arsenic (up to 150 times normal adult levels) in liver, kidney, and brain. Inorganic arsenic apparently passes across the placenta quite easily. (10 refs.) - *E. L. Rowan.*

University of Alabama Medical Center
Birmingham, Alabama 35233

134 BUNCHER, CHARLES RALPH. Cigarette smoking and duration of pregnancy. *American Journal of Obstetrics and Gynecology*, 103(7):942-946, 1969.

Cigarette smoking during pregnancy is known to be associated with a reduction in birthweight, and part of this may be attributed to a shorter duration of pregnancy. A comparison of smoking habits of over 24,000 women revealed that the one-pack-a-day smoking mother had a 29-hour-shorter pregnancy for female births and a 34-hour-shorter pregnancy for male births than did non-smoking mothers. Assuming linear weight gain, this would account for approximately 10% of the known difference in birth-weight. The remaining weight reduction must be attributed to physiological consequences of smoking itself. (11 refs.) *E. L. Rowan.*

Atomic Bomb Casualty Commission
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Trauma or physical agents

135 AMIEL-TISON, CLAUDINE. Cerebral damage in full-term new-born. Aetiological factors, neonatal status and long-term follow-up. *Biologia Neonatorum*, 14(3-4):234-250, 1969.

This prospective enquiry has been undertaken to establish the neuro-psychological prognosis of babies born at term, who presented after birth signs of severe brain damage. During a 3 year period at the Baudelocque Maternity Hospital, 41 babies were selected for study. Ten of them had status epilepticus, demonstrated clinically and on EEG; the remaining 31, grouped in various ways, all had signs of severe neurological damage. The pregnancy and obstetrical histories were analysed and the babies divided into 2 groups according to the etiology of the cerebral damage: 19 were from birth trauma (9 due to dynamic dystocia); 22 had various other etiological factors, abnormal pregnancies, unexplained fetal distress during labor, or where no apparent etiological factor was discovered. These children have been followed up with repeated neurological, psychological and electroencephalographic examinations. On reaching the ages of 2 to 5 years, 25 of the children were classified as follows: 15 normal, 4 with slight disability, and 6 severely handicapped. When these results are correlated to their initial clinical state, it appears that the prognosis in status epilepticus is very bad; 5 out of 10 of these babies developed severe handicaps, while only one out of 17 children in the group of 'other etiologies' was severely handicapped. Correlating the results with the etiology, only one child with brain damage from obstetrical trauma has a severe handicap, as opposed to 5 in the group of 'other etiologies'. It seems possible to conclude that cerebral damage during pregnancy (long-standing fetal distress) has a worse prognosis than the acute traumatic damage during labor and delivery, providing that status epilepticus does not ensue. Despite the small numbers in this study, and the short follow-up, these results are sufficiently encouraging to justify taking a very active attitude towards the treatment of these babies during the neonatal period, except in the cases of status epilepticus. Though the prognosis is not clear in each individual case, hope should not be abandoned as nearly 2/3 of these babies will become normal children. (10 refs.) - *Journal summary.*

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136 KLONOFF, H.; ROBINSON, G. C.; & THOMPSON, G. Acute and chronic brain syndromes in children. *Developmental Medicine and Child Neurology*, 11(2):198-213, 1969.

In an initial study of the correlation between brain-damage and behavior, acutely and chronically brain-injured children under age 9 were compared with age and sex matched normal controls on a battery of neurological, neuropsychological, and EEG tests. The group of 74 acutely injured (head trauma) children were evaluated during hospitalization, and the 77 chronically brain-damaged (meningitis, encephalitis, kernicterus, or rubella) children and controls received the same test battery. Both acute and chronically brain-damaged groups had significantly lower IQs than their normal controls. Both also showed marked and generalized psychological deficits. Fifty percent of the acute and 36% of the chronic group had "severe" neurological findings, and 59% of the acute group had "abnormal" EEGs. The neuropsychological battery was standardized on 209 normal children who showed changes with increasing age but no sex differences. Discriminant analysis indicated a clear distinction between the acute and chronic groups on this test. On subsequent examination, it is likely that the chronic group will remain unchanged and that the acutely injured group will move toward premorbid levels of function. (23 refs.) *E. L. Rowan.*

University of British Columbia
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137 GARRETTSON, LORNE K.; PEREL, JAMES M.; & *DAYTON, PETER G. Methylphenidate interaction with both anticonvulsants and ethyl biscoumacetate. A new action of methylphenidate. *Journal of the American Medical Association*, 207(11):2053-2056, 1969.

Administration of therapeutic doses of methylphenidate hydrochloride (20-40 mg/day) to a MR 5-year-old boy for control of minimal cerebral dysfunction increased the serum levels of primidone, diphenylhydantoin sodium, and phenobarbital to toxic levels which produced ataxia. In 2 other children, the serum anticonvulsant levels were not changed when methylphenidate was given in much lower doses. In 4 adult volunteers, the disappearance rate of administered ethyl biscoumacetate was markedly reduced by methylphenidate. Methylphenidate at 10^{-5}M caused a 10% decrease in the metabolism of zoxazolamine by human liver homogenates, and at 10^{-4}M, 100% inhibition occurred. Proadifen (SKF 525-A) was equally potent in this respect. The results indicated that methylphenidate inhibits the microsomal drug-metabolizing enzymes; therefore, the therapeutic use of methylphenidate needs further consideration. (24 refs.) - *L. S. Ho.*

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Atlanta, Georgia 30322

138 JOHNSON, KATHLEEN. Hyperkinetic syndrome in children. *Nursing Mirror*, 128(21):21-24, 1969.

"Hyperkinetic syndrome" is used to describe a child who is aggressive, destructive, and easily distractable. This "violent motor unrest" may or may not be associated with cerebral damage, epilepsy, or MR, can be acute or chronic, and can result from cerebral injury (trauma or encephalitis), catatonia (schizophrenia), chorea (rheumatic or Huntington's), or be part of normal behavior. Drugs such as chlorpromazine have been extremely useful in the control of the agitated, aggressive, hyperkinetic patient. Many of these children are unable to remain at home, and hospitals for the MR and their schools are charged with redirecting their energy into useful pursuits. (7 refs.) - *E. L. Rowan.*

Brockhall Hospital
Langho, Nr. Blackburn, England

139 KORNBLUM, RONALD N.; & FISHER, RUSSELL S. Pituitary lesions in craniocerebral injuries. *Archives of Pathology*, 88(3):242-248, 1969.

Although head trauma is rarely found as a cause of clinical pituitary dysfunction, pathological examination of the pituitary gland in persons who died following craniocerebral injury revealed pituitary trauma in 62 out of 100 cases. Capsular hemorrhage as a form of subarachnoid hemorrhage occurred in 59 trauma cases but was also found in nontraumatic deaths. Lesions of the stalk (6 hemorrhage with one laceration) occurred in only the most severe head injuries. Contusion hemorrhage and/or contusion necrosis of the posterior lobe was found in 42 cases. Anterior lobe necrosis was found in 22 cases, but at least 2/3 of the lobe must be destroyed before clinical symptoms appear; patients with significant areas of necrosis do

not survive. Swelling of the pituitary secondary to shock compresses the long hypophyseal portal veins against the free edge of the diaphragm sella, and anterior pituitary infraction is the result. (21 refs.) *E. L. Rowan.*

Office of the Chief Medical Examiner
111 Penn Street
Baltimore, Maryland 21201

140 EBBIN, ALLAN J.; GOLLUB, MICHAEL H.; STEIN, ARTHUR M.; & WILSON, MIRIAM G. Battered child syndrome at the Los Angeles County General Hospital. *American Journal of Diseases of Children*, 118(4):660-667, 1969.

Among 106 children admitted to the Los Angeles County General Hospital during a one year period as "probably battered", 50 met strict criteria (admission of battery, report of witness, or evidence of previous injuries) as battered children. When compared to the outpatient population in general, these children were over representative of the white race and of homes where parents were not living together. There were 3 deaths in this series, 1/2 of the children had serious fractures, and most had bruises, burns, and lacerations. Half had been injured previously, and in 8 families, siblings had also been battered. These cases were reported to the police because the physicians were willing to become involved in legal proceedings. Immunity laws should be broadened so that other interested parties may report suspected child abuse and thus prevent more serious injuries. (6 refs.) *E. L. Rowan.*

1200 North State Street, Room 1 G 30
Los Angeles, California 90333

141 LEVKOFF, ABNER H. Perinatal outcome of paroxysmal tachycardia of the newborn with onset in utero. Report of 2 cases; review of the literature and a discussion of a clinical approach to fetal tachycardia. *American Journal of Obstetrics and Gynecology*, 104(1):73-79, 1969.

A review of 17 cases of paroxysmal tachycardia discovered *in utero* showed that the fetus can tolerate this disorder as well as ensuing labor; however, most of the infants received digitalis within 15 minutes of birth. If fetal tachycardia is not slowed by uterine contraction, fetal distress is probably not present; therefore, interruption of labor is not recommended. All infants survived in apparently good health, except for one S with mild hydrocephaly and MR found at the age of 7. (33 refs.) - *L. S. Ho.*

Medical College of South Carolina
Charleston, South Carolina 29401

142 YOUNG, J. A.; & RASHEED, S. Neonatal drug depression and respiratory distress managed by positive pressure ventilation and exchange transfusion. *Archives of Disease in Childhood*, 44(236):509-510, 1969.

An infant whose mother had received a heavy dosage of chlormethiazole to achieve anesthesia during labor was severely asphyxiated at delivery. Manual and mechanical intermittent positive pressure ventilation were required because of severe depression of cortical function in the infant. An exchange transfusion was performed to decrease the level of drug. The infant recovered despite the appearance of both clinical and radiological evidence of hyaline membrane disease. (3 refs.) - *E. L. Rowan.*

Special Nursery, Maternity Hospital
Aberdeen, Scotland

143 DUNN, JAMES MICHAEL; & MILLER, JAMES A., JR. Hypothermia combined with positive pressure ventilation in resuscitation of the asphyxiated neonate: Clinical observations in 28 infants. *American Journal of Obstetrics and Gynecology*, 104(1):58-67, 1969.

Twenty-eight neonates (birth-weights 1,049 to 4,451 gms) whose Apgar scores were 3 or less after 5 minutes (in all except 2 cases) were placed in cold water and artifically respired for 3 to 28 minutes. The infants were then allowed to rewarm with no assistance. During cold exposure, there was a mean increase of 6.4 Apgar units, and all infants began to breathe spontaneously. Three deaths occurred (2 premature infants from respiratory distress, and one full-term infant with congenital cardiac anomalies judged to be incompatible with life). Hypothermia increased the Apgar scores of all infants, even those with a 5-minute score of 0, and it did not contribute to the 3 deaths observed. Follow-up studies of the babies for periods of up to 2 years were normal except for 2 cases of superficial fatty necrosis (both of which resolved spontaneously). (33 refs.) *M. G. Conant.*

1234 Travis Boulevard
Fairfield, California 94533

144 BACHMANN, K. D.; FRIEDMANN, G.; WEIDEN, H.; SPRINGMANN, L.; SCHMIDT, E.; & BOLTE, A. Vacuum extraction: An assessment of the risk to the baby. *German Medical Monthly*, 15(5):229-230, 1969.

Among 110 newborns delivered by vacuum extraction, there were linear skull fractures in 4, hair-line skull fractures in 6, fractured clavicles in 5, retinal hemorrhages in 55, and abnormal EEGs in 21. In the control group of 438 spontaneous births, there were 103 infants with retinal hemorrhages. Of these 103, only one had a hair-line skull fracture, and 10 had abnormal EEGs. All lesions in the control group reverted to normal within a month; however, 4 of the infants delivered by vacuum extraction had persistent EEG abnormalities. Babies delivered by vacuum extraction might subsequently show impaired intellectual and neurological development and should be followed closely. At present, the procedure should be used only in the presence of good indications. (19 refs.) *E. L. Rowan.*

Universitats-Kinderklinik
Cologne, West Germany

145 BENSON, RALPH C; BERENDES, HEINZ; & WEISS, WILLIAM. Fetal compromise during elective cesarean section. II. A report from the Collaborative Project. *American Journal of Obstetrics and Gynecology*, 105(4):579-588, 1969.

Studies of elective, repeat cesarean sections and spontaneous vaginal deliveries show that spontaneous delivery is less dangerous for the neonate; this is due to factors of anesthesia and analgesia. The study population included 405 neonates born of normal multiparous women whose previous delivery was by cesarean section. Comparative data were obtained from 8,028 normal multiparas delivered vaginally after onset of labor. Cesarean section was associated with increased neonatal mortality, growth retardation, and increased morbidity. The deeper stages of anesthesia resulted in lower neonatal Apgar scores. In addition, analgesics may also depress the score. Regional anesthesia for elective cesarean section seems less harmful for the neonate than general anesthesia. (12 refs.) - *B. Bradley.*

University of Oregon Medical School
Portland, Oregon 97201

146 DUNLOP, D. L. Midforceps operations at the University of Alberta Hospital (1965-1967). *American Journal of Obstetrics and Gynecology*, 103(4):471-475, 1969.

The operative difficulty and infant and maternal complications of 292 midforceps procedures were evaluated in order to determine if cesarean section would reduce trauma in such cases. Positional dystocia represents the most difficult of vaginal deliveries; however, only 31% of these procedures were judged as moderately or very difficult by the operator, and less than 5% of the children were significantly depressed on the 5-minute Apgar score. The 2 perinatal deaths in the series were unrelated to forceps application, and only 3 infants sustained serious trauma (2 transient facial paralyses and one broken clavicle). Approximately 1/4 of the mothers had vaginal lacerations. Cesarean section with its inherent complications would have made little difference in infant or maternal morbidity and mortality and should not be substituted for an artful midforceps procedure. (10 refs.) - *E. L. Rowan.*

University of Alberta
Edmonton, Alberta, Canada

147 HIBBARD, LESTER T. Placenta previa. *American Journal of Obstetrics and Gynecology*, 104(2):172-184, 1969.

The fetal salvage in placenta previa has not improved significantly during the last 20 years; fetal mortality was 24.9% during the period of 1948 to 1953 and 24.7% during the period of 1962 to 1966. Efforts to reduce fetal wastage are hampered by frequent uncontrollable hemorrhages (36.4%) and premature delivery (20%). The type of intensive care required to prevent placenta previa is usually not available to most maternity patients; therefore, the only practical method to prevent placenta previa is to limit childbearing in women who are at risk. (22 refs.) *L. S. Ho.*

University of Southern California Medical Center
Los Angeles, California 90033

148 SMITH, EDWARD T. Hip dislocation in cerebral palsy. *Developmental Medicine and Child Neurology*, 11(3):291-296, 1969.

A 6-stage surgical procedure for reducing hip dislocation in CPs includes tenotomy of the

tight adductors, release of the psoas tendon from the lesser trochanter, open reduction of the dislocated hip, transplant of the psoas tendon, subtrochanteric osteotomy of the femur, and closure and application of a cast. (10 refs.) - *L. S. Ho.*

Hermann Hospital
Houston, Texas

149 HARDY, JAMES C.; NETSELL, RONALD; SCHWEIGER, JAMES W.; & MORRIS, HUGHLETT L. Management of velopharyngeal dysfunction in cerebral palsy. *Journal of Speech and Hearing Disorders*, 34(2):123-137, 1969.

The procedure of choice for the treatment of palatal paresis in children with CP is prosthetic management because of the lack of surgical risk and the higher probability of success. Of 6 CP children who received pharyngeal flap surgery, 3 made sufficient gains in speech after surgery to consider it a success. Velopharyngeal dysfunction was a prime deterrent to significant speech gains in all cases. All patients participated in a concentrated postsurgery remedial speech program over a 1- to 5-year period. Lack of success appeared to be related to lack of intrinsic motivation. Prosthetic management (10 cases of palatal lift, one case of a bulb-type obturation) was successful in 10 of 11 cases. Special prostheses were constructed, lateral X-rays were used to determine the optimal length of the shelf, and optimal lateral dimensions were determined by a speech clinician. This type of program may be useful for young, relatively nonverbal children; however, it should not be initiated until the first and second maxillary molars have erupted. The purposes of the appliance should be explained to the child, and extensive counseling regarding its limitations should be provided. Construction and adjustment procedures and changes in the configuration of the oral cavity are described. (4 refs.) - *J. K. Wyatt.*

University of Iowa
Iowa City, Iowa 52240

150 WARLOW, CHARLES P.; & HINTON, PAMELA. Early neurological disturbances following relatively minor burns in children. *Lancet*, 2(7628):978-982, 1969.

Six cases of early "burns encephalopathy" are described. The patients were children with burns of 9% to 33% of their body-surface. Although their expected mortality in terms of size of burn would be negligible, 2 children died. Death was attributed to brain "swelling" the cause of which is unknown. It is postulated that, during the first 48 hours after burn injury, there is a range of acute neurological disturbance, from mild to severe, which may occasionally prove fatal. (18 refs.) - *Journal summary.*

Birmingham Accident Hospital
Birmingham 15, England

151 Diagnostic X-rays found safe in pregnancy. *Medical World News*, 9(35):18-19, 1968.

A retrospective study of 151 Danish women who had received diagnostic abdominal X-rays during early pregnancy failed to show a higher incidence of birth defects or deaths in these children when compared with nonirradiated sibling controls. The irradiated group contained many more children of below average height than did the control groups, however. This was probably a consequence of irradiation. (No refs.) - *E. L. Rowan.*

152 Radiation. *Medical World News*, 10(44): 23-28, 1969.

Although most people are now aware of the dangers of radiation, little is being done to combat these dangers. Many individuals and corporations are interested only in the exploitation of nuclear power. Very small amounts of radiation from fallout can eventually accumulate and can cause great damage to the human gene pool; any radiation which reaches the reproductive cells will cause mutation, and these mutations are passed to future generations. Irradiation in prenatal diagnoses has increased the incidence of infant leukemia and cancer of the central nervous system. In addition, prenatal X-rays have been implicated in the occurrence of congenital anomalies in children. In our present environment, the major source of man-made radiation is under the control of doctors and dentists; however, faulty equipment and inexperienced operators often allow much more radiation exposure than is necessary. New legislation affecting training and inspection of radiation sources may be necessary to put realistic checks on our new powers. (No refs.) - *E. Hays.*

Disease or disorders of metabolism, growth, or nutrition

153 WORLD HEALTH ORGANIZATION. *Screening for Inborn Errors of Metabolism. Report of a WHO Scientific Group.* (World Health Organization Technical Report Series Number 401). Geneva, Switzerland, 1968, 57 p. $1.25.

Metabolic conditions which are considered for screening tests are those disorders which have definitive identification tests and a treatment program when identified (PKU, Wilson's disease, galactosemia) and those disorders in which the abnormal gene can be identified, but which need environmental triggers to activate such a gene (porphyria). The structure of a screening program depends upon facilities available, the amenability of the disorder to treatment, and the socioeconomic effects of the disorder. Since most inborn metabolic errors are recessive, detection of the heterozygote (carrier) is also an important consideration in any screening program. Few screening tests which detect the homozygote will also detect the carrier. There is often much overlapping between normals and carriers, and extraneous factors such as diet, drugs, age, and sex can affect test results. Mass screening programs must take into consideration community resources including: adequate laboratories; operational channels of communication in reporting positive results, retesting for confirmation, and programing for treatment; industrial competence to supply synthetic diets; adequate follow-up facilities; and good working interrelations among personnel involved. (127 refs.) - *K. Jarka.*

CONTENTS: General Considerations; Detection of Heterozygotes; Screening for Certain Selected Conditions; Resources for Mass Screening; Conclusions; Recommendations.

154 SNYDERMAN, SELMA E. Metabolism. In: Wortis, Joseph, ed. *Mental Retardation: An Annual Review--Volume I.* New York, New York, Grune & Stratton, 1970, p. 178-196.

Biochemical disorders and associated MR are reported in almost every metabolic area including metabolism of amino acids, fats, carbohydrates, purines, and vitamins. Detection of phenylketonuria (PKU) among newborns is still difficult because many cases of elevated plasma levels of phenylalanine are not the result of PKU. The majority of these non-PKU cases have immature tyrosine-oxidizing systems. Dietary restriction of protein intake is unquestionably beneficial and ultimate intellectual development depends upon the age at which the treatment is instituted. The next most frequently found inborn error of metabolism is homocystinuria, and MR is found in about 1/2 of these cases. Therapies include a low-methionine plus cystine supplementation diet and a diet supplemented with cystathionine. The most common inborn error of metabolism of carbohydrates is galactosemia; however, if the dietary removal of galactose is instituted early enough, MR can be prevented. (164 refs.) - *L. S. Ho.*

155 WOLFF, O. H. Neurological disorders associated with abnormal amino acid metabolism. In: Cumings, John.; & Kremer, Michael, eds. *Biochemical Aspects of Neurological Disorders: Third Series.* Oxford, England, Blackwell Scientific Publications, 1968, Chapter 7, p. 99-108.

Early diagnosis, dietary treatment, and mass screening tests are of prime importance in controlling phenylketonuria (PKU), maple syrup urine disease, and homocystinuria. A low-phenylalanine diet, initiated before 12 weeks of age, is effective in treating PKU. Discontinuation of the diet at about 10 years of age does not appear to have adverse effects on the condition; however, in patients with epilepsy, dietary treatment probably should be continued. Since varieties of hyperphenylalaninemia exist, a positive Guthrie test is only the first step toward diagnosis. The patient should be referred to hospitals equipped for the investigation of these metabolic disorders. Occasionally, an affected child may have normal intelligence. Most infants with maple syrup urine disease die early in infancy, and those few who survive have brain damage. Early dietary restriction of leucine, isoleucine, and valine appears to be effective. In patients whose diagnosis is delayed past 17 days of age, normal mental development has not been achieved. In homocystinuria, mental development may be normal, mildly retarded, or severely retarded. A diet

rich in cystine and cystathionine but low in methionine may be beneficial. (34 refs.) *L. S. Ho.*

156 WOOLF, L. I. Biochemical aspects of neurological disorders associated with abnormal amino-acid metabolism. In: Cumings, John N.; & Kremer, Michael, eds. *Biochemical Aspects of Neurological Disorders: Third Series*. Oxford, England, Blackwell Scientific Publications, 1968, Chapter 8, p. 109-128.

Genetically determined absence of an enzyme or transport system causes the accumulation of normal substrates or their metabolic products to toxic levels which affect the brain at the time of its most rapid development. Phenylalanine hydroxylase which catalysis the conversion of phenylalanine to tyrosine is absent in phenylketonuria. The accumulation of phenylalanine and its metabolites prevents the deposition of the myelin sheath in young patients and causes the destruction of myelin in older patients. Other inborn errors of amino acid metabolism include maple syrup urine disease, histidinemia, homocystinuria, and Hartnup disease. In maple syrup urine disease, the oxidative decarboxylation of leucine, isoleucine, and valine is blocked. The white matter of the brain is grossly abnormal with an absence of cerebrosides and sulfatides. Pyruvate decarboxylation is also found to be blocked in some patients; therefore, there may be a fundamental defect in the Krebs cycle. The normal formation of urocanic acid from histidine is blocked in histidinemia while in homocystinuria, the absence of cystathionine synthase causes the accumulation of homocysteine and methionine, and the syntheses of cystathionine and cystine is blocked. Hartnup disease is due to defects in renal reabsorption and intestinal absorption of neutral amino acids. (87 refs.) *L. S. Ho*

157 WILSON, JOHN. Genetically determined neurological diseases in children. In: Cumings, John N.; & Kremer, Michael, eds. *Biochemical Aspects of Neurological Disorders: Third Series*. Oxford, England, Blackwell Scientific Publications, 1968, Chapter 17, p. 250-267.

Genetically determined neurological disorders may include a derangement of cell function due to the accumulation of metabolites, a generalized metabolic disturbance, and those abiotrophies in which the patient is afflicted by a progressive disorder after a period of normal development and differentiation. Tay-Sachs' disease is inherited as an autosomal recessive and usually appears in the first year of life. The amaurotic family idiocies resemble Tay-Sachs' disease in their progressive psychomotor dysfunction and seizures; however, they are different genetically, clinically, and chemically. Niemann-Pick's disease also shows lipid accumulation in neurons and is transmitted as an autosomal recessive. Leukodystrophies present gross demyelination in cerebral white matter and peripheral nerves and are usually transmitted as autosomal recessives. Friedreich's disease is an autosomal recessive trait which develops insidiously in childhood, while Huntington's chorea develops in adults and is an autosomal dominant trait. Refsum's disease, abetalipoproteinemia, hyperuricemia, hepatolenticular degeneration, infantile necrotizing encephalomyelopathy, and hereditary fructose intolerance are neurological disorders resulting from generalized metabolic diseases. (59 refs.) - *L. S. Ho*

158 CUMINGS, JOHN N. Genetically determined neurological diseases of children. In: Cumings, John N.; & Kremer, Michael, eds. *Biochemical Aspects of Neurological Disorders: Third Series*. Oxford, England, Blackwell Scientific Publications, 1968, Chapter 18, p. 268-288.

The biochemical defects involved in some genetically determined neurological disorders of children include increased sphingomyelin and reduced sphingomyelinase in Niemann-Pick's disease, excessive tissue levels of phytanic acid and lack of ability to decarboxylate β-methyl fatty acids in Refsum's disease, diminished serum ceruloplasmin and raised urinary and liver copper levels in Wilson's disease, increased blood and urinary uric acid levels in hyperuricemia, and absence of fructose-1-phosphate aldolase and reduced fructose-1,6-diphosphate aldolase in hereditary fructose intolerance. Other disorders involving sphingolipids are Gaucher's disease, metachromatic leukodystrophy, Krabbe's disease, and Tay-Sachs' disease. Amaurotic family idiocy is a group of disorders characterized by a loss of lipids and demyelination; however, no specific chemical changes have been found. In abetalipoproteinemia, there is an absence of low-density lipoproteins. In infantile necrotizing encephalopathy, blood pyruvate is increased, but the nature of the disorder has not been elucidated. (76 refs.) - *L. S. Ho.*

159 WILDBOLZ, A. Phenylketonurie: Epidemiologische und genealogische Untersuchung uber das Vorkommen im Kanton Bern 1966 (Phenylketonuria: Epidemiological and genealogical survey of its presence in the canton of Berne in 1966). *Psychiatria Clinica*, 1(4):219-244, 1968.

In a survey on phenylketonuria (PKU) in the canton of Berne in 1966, it was found that of the MRs in institutions 0.71% reacted positively to a test for PKU; in 5 cases of PKU which were known or newly diagnosed, the IQ level was found not to be related to the level of phenylalanine in the blood. The incidence of PKU was about the same as that given in world-wide figures, whereas previously the incidence was thought to be much lower. Individual case studies showed that most institutionalized MRs with PKU came from lower socioeconomic levels. (33 refs.) *S. L. Hamersley.*

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Bern, Switzerland CH 3006

160 LOEB, H.; TONDEUR, M.; JONNIAUX, G.; MOCKEL-POHL, S.; & VAMOS-HURWITZ, E. Biochemical and ultrastructural studies in a case of mucopolysaccharidosis "F" (Fucosidosis). *Helvetica Paediatrica Acta*, 24(5): 519-537, 1969.

The case report concerns an Italian boy aged 3 years presenting physical dysmorphism suggesting Hurler's syndrome, hepatosplenomegaly, and psychomotor regression. Urinary excretion of mucopolysaccharides is slightly increased; lymphocytes contain non-metachromatic vacuoles. Ultrastructural study of liver and brain shows abnormal cytoplasmic inclusions, most often limited by a unit membrane and containing 2 different materials. The main component shows a fine reticular and weakly osmiophilic aspect and is probably mucopolysaccharidic in nature. The second component, strongly osmiophilic, shows alternating light and dark lamellae and is probably made of complex lipids. The lamellar bodies are prominent in hepatocytes but much less common in neurons, where the storage is almost exclusively mucopolysaccharidic. Chemical analysis of the liver demonstrates a distinct increase in some glycolipidic fractions; these are normal in the grey matter. Liver mucopolysaccharides are increased, with the presence of a large excess of fucose. Alpha-L-fucosidase is completely inactive in liver, brain, and urine. The absence of α-L-fucosidase, together with the accumulation of fucosides makes it highly probable that the enzymic deficiency is the cause of this disease, designated "mucopolysaccharidosis F" or "fucosidosis", which may be considered as a new example of inborn lysosomal disease. (72 refs.) *Journal summary.*

University of Brussels
Brussels, Belgium

161 HOLT, KENNETH S. The Lesch-Nyhan syndrome. *Developmental Medicine and Child Neurology*, 11(3):382-384, 1969. (Annotation)

A syndrome is first delineated by the collection of similar case histories as was done by Lesch and Nyhan in 1964 when they described patients with cerebral palsy, MR, and self-mutilation associated with hyperuricemia and a sex-linked form of inheritance. This was then confirmed by the identification of the biochemical defect in 1967 as the absence of the enzyme hypoxanthine-guanine phosphoribosyltransferase in these patients. The final step of circumventing the biochemical defect to relieve symptomatology has yet to be accomplished. (9 refs.) - *E. L. Rowan.*

Wolfson Centre of Developmental Paediatrics
Institute of Child Health
London, W.C. 1, England

162 STOREY, BRUCE. The Lesch-Nyhan syndrome. *Medical Journal of Australia*, 2(39):696-699, 1969.

Although there was an absence of self-mutilation, a 3-year-old boy exhibited other clinical and neurological manifestations of the Lesch-Nyhan syndrome (MR, hyperuricemia, choreoathetosis, spasticity, exaggerated deep tendon reflexes, and opisthotonic posture). The absence of self-mutilation may be related to the fact that his teeth were ground to the gum margin. Other pertinent clinical findings were a neonatal history of crystalluria with hypotonia, poor sucking, slow weight gain, height and weight which were below the third percentile at age 3, and very slow growth and development. Pertinent laboratory findings included an elevated fasting serum uric acid level, which decreased after a low purine diet for a week, and hematuria with increased uric acid crystals in the urine. Postmortem examination revealed dilation of the left lateral venticle of the brain (a finding previously reported), obscurity of brain sulci, pneumonic changes in the lungs, and normal kidneys. There was a family history of renal calculi and MR. A literature review indicates that the pedigree of these patients is usually an X-linked recessive and the administration

of uricosuric drugs like probenecid and allopurinol is usually associated with a reduction in the serum uric acid levels and improvement in some of the clinical manifestations of the patient. (16 refs.) - *A. J. del Rosaria.*

Grosvenor Hospital
Summer Hill
New South Wales, Australia

163 RUDD, B. T.; CHANCE, G. W.; & *THEODORIDIS, C. G. Adrenal response to ACTH in patients with Prader-Willi syndrome, simple obesity, and constitutional dwarfism. *Archives of Disease in Childhood*, 44(234): 244-247, 1969.

The study of plasma cortisol response to adrenal corticotropin-stimulating hormone (ACTH) in 6 children with the Prader-Willi syndrome found that 2 had significantly lower cortisol levels 4 hours after the ACTH injection than did normal young adults or children with constitutional short stature or simple obesity. Long-term stimulation with ACTH (3 days) in 2 patients with the Prader-Willi syndrome also showed lower than normal urinary 17-hydroxycorticosteroids. Partial failure of the adrenal response was confirmed in this syndrome; however, this response does not appear to be directly related to obesity nor short stature in this disorder. (14 refs.) - *L. S. Ho.*

*University of Birmingham
Birmingham 16, England

164 CARSON, N. A. J.; & CARRE, I. J. Treatment of homocystinuria with pyridoxine: A preliminary study. *Archives of Disease in Childhood*, 44(235):387-392, 1969.

Eleven patients (CA 9 mos to 29 yrs) with homocystinuria were treated with high doses of oral pyridoxine. Six responded biochemically with a reduction in plasma homocystine and methionine (alternate metabolite) and an increase in plasma cystine (normal and essential metabolite). Pyridoxine serves as a coenzyme in metabolism, and there are apparently 2 basic genetic defects in homocystinuria as 5 of the 11 patients (who seem to lack an apoenzyme) failed to respond to the therapy. Three patients developed a folic acid deficiency while treated with pyridoxine, and this should be investigated. Homocystinuria is a slowly progressive disease, and biochemical improvement in 6 patients and behavioral improvement in at least 2 suggests that a trial of pyridoxine is warranted at any age. (23 refs.) - *E. L. Rowan.*

Queen's University
Belfast 12, Northern Ireland

165 HOPKINS, IAN; TOWNLEY, R. R. W.; & SHIPMAN, R. T. Cerebral thrombosis in a patient with homocystinuria. *Journal of Pediatrics*, 75(6):1082-1083, 1969.

Thromboses in many sites have been reported in association with homocystinuria, and this metabolic error was suspected in a 17-month-old girl with cerebral thrombosis and a family history (2 siblings) of homocystinuria. The patient had had psychomotor retardation and some enlargement of the head before her acute episode. Angiography aggravated the clinical picture and is probably contraindicated in suspected cerebral thrombosis until homocystinuria has been ruled out by the simple cyanide/nitroprusside urine test. (3 refs.) - *E. L. Rowan.*

University of Melbourne
Melbourne, 3052, Australia

166 LEVY, HARVEY L.; BADEN, HOWARD P.; & SHIH, VIVIAN E. A simple indirect method of detecting the enzyme defect in histidinemia. *Journal of Pediatrics*, 75(6): 1056-1058, 1969.

A simple paper chromatographic test reliably differentiated 113 normal controls from 7 individuals with histidinemia, as none of the latter group had quantifiable urocanic acid in their skin. Individuals with histidinemia lack the enzyme histidase which metabolizes histidine to urocanic acid. This simple indirect test requires as little as 0.5 mg of cornified epithelium and is much more practical than the enzyme assay which requires 25 mg of such skin or a sweat assay for urocanic acid which requires 40 mg of sweat. This indirect skin assay, in combination with elevations of histidine in blood and urine, confirms the diagnosis of histidinemia. (8 refs.) - *E. L. Rowan.*

Massachusetts General Hospital
Boston, Massachusetts 02114

167 KOMROWER, G. M.; & ROBINS, A. J. Plasma amino acid disturbance in infancy, I: Hypermethioninaemia and transient tyrosinaemia. *Archives of Disease in Childhood*, 44(235):418-421, 1969.

A prospective screening survey for neonatal aminoacidopathies revealed 22 infants with transient hypermethioninemia, 3 of whom had prolonged elevations. This group showed a similar pattern of tyrosinemia at 10 to 12 days, hypermethioninemia at 6 to 12 weeks, and anemia at 10 to 18 weeks. All had been on artificial milk products, but all had had an excess protein intake which may have overloaded their developing enzyme systems. All showed a slight elevation of alkaline phosphatase, but aside from this possibility of slight hepatic damage, none appeared to show any permanent effects of hypermethioninemia at the time of follow-up. (18 refs.) *E. L. Rowan.*

Royal Manchester Children's Hospital
Manchester M 27 1 HA, England

168 HOMMES, F. A.; KUIPERS, J. R. G.; ELEMA, J. D.; JANSEN, J. F.; & *JONXIS, J. H. P. Propionicacidemia, a new inborn error of metabolism. *Pediatric Research*, 2(6):519-524, 1968.

A male infant born to unrelated parents was found to have hyperpropionicacidemia with a blood propionic acid level of 5.4 mM/l. This metabolic acidosis was not responsive to administration of alkali, and he died at 5 days of age. Before death, the patient also exhibited severe hypotonia, areflexia, hyperventilation, and grunting. Blood urea and potassium levels were high, probably due to reduced urine production caused by dehydration. Autopsy showed fatty degeneration of liver cells, degeneration of the Purkinje cells of the cerebellum, and debris filled macrophages in the bone marrow and the spleen. Two abnormal saturated fatty acids (C_{15} and C_{17}) were found in the liver. A metabolic block in the conversion of propionic acid into methylmalonic acid is suggested. Because a female sib died of identical symptoms at the age of 3 days, this syndrome is thought to be inherited as an autosomal recessive. (10 refs.) - *L. S. Ho.*

*State University
Groningen, Netherlands

169 BAUMGARTNER, REGULA; ANDO, TOSHIYUKI; & *NYHAN, WILLIAM L. Nonketotic hyperglycinemia. *Journal of Pediatrics*, 75(6): 1022-1030, 1969.

A lethargic infant male was diagnosed as having nonketogenic hyperglycinemia on the basis of increased concentrations of glycine in blood and urine without evidence of the ketotic metabolic acidosis, neutropenia, and thrombocytopenia which are characteristic of the ketogenic form of this disorder. Although an early exchange transfusion and later treatment with benzoate led to some clinical and biochemical improvement, the course was steadily downhill as intractable seizures and psychomotor retardation were manifest. Radioactive labeling revealed the defect to be in an enzyme catalyzing the conversion of the first carbon of glycine to carbon dioxide and the conversion of the second carbon of glycine to the third carbon of serine. (24 refs.) - *E. L. Rowan.*

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La Jolla, California 92037

170 MEEUWISSE, GUNNAR W.; & MELIN, KERSTIN. Glucose-galactose malabsorption: A clinical study of 6 cases. *Acta Paediatrica Scandinavica*, Supplement 188:3-18, 1969.

Of 6 (2 males and 4 females) patients with glucose-galactose malabsorption (GGM) symptoms 4 survived and remain in good health on a diet of reduced carbohydrate content. One patient died with agammaglobulinemia, and the other died with severe malnutrition due to diarrhea. GGM symptoms are diarrhea from birth, dehydration, and malnutrition. In the patients studied, hyperosmolar serum was noted; glucose was found in watery stools, and glucosuria was noted. Renal concrements were found in 2 patients. Treatment consisted of replacing ordinary carbohydrates with fructose. In patients with GGM, at least part of the glucose seems to be absorbed by a secondary specific pathway for glucose which has a much lower affinity for galactose. Intubation studies show that glucose and galactose released from the disaccharides by the mucosal disaccharidases are given no opportunity to by-pass the defective transport mechanism, and the metabolic block is located at the entry step of the monosaccharides into epithelial cells. The disaccharidases seem to exert this effect before the complete penetration of the sugar through the cell membrane. (53 refs.) - *F. J. McNulty.*

University of Lund
Lund, Sweden

171 MELIN, KERSTIN; & *MEEUWISSE, GUNNAR W. Glucose-galactose malabsorption: A genetic study. *Acta Paediatrica Scandinavica*, Supplement 188:19-24, 1969.

A pedigree of patients with glucose-galactose malabsorption (GGM) reveals that GGM has an autosomal recessive mode of inheritance. The pedigree was traced back to a marriage that gave birth to 13 children in the beginning of the 18th century. In the pedigree, an aunt of one of the patients married a distant relative and had 12 children; 4 of these children died between the age of 3 weeks and 3 months from intractable diarrhea commencing in the newborn period. It is likely that these children also had GGM. Two sets of parents tested for glucose tolerance were normal. No glucosuria occurred in the parents of 5 of the patients. Examination of the urinary excretion of amino acids of 4 patients showed that they excreted increased amounts of β-aminoisobutyric acid (BAIBA); however, one patient did not excrete increased amounts of BAIBA. The total excretion of α-amino acids was normal. Of 7 parents studied, 2 excreted increased amounts of BAIBA. The pedigree of the patients indicates a low gene frequency. In one case, consanguinity could not be demonstrated, and this may be because the pedigree of the mother became incomplete when traced back for more than a few generations. (53 refs.)
F. J. McNulty.

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172 HSIA, DAVID YI-YUNG, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, 318 p. (Price unknown).

Galactosemia, an inborn error of metabolism in which galactose accumulates in tissues because galactose-1-phosphate uridyl transferase is absent, is characterized principally by jaundice, hepatomegaly, and failure to thrive and occurs about once in 20,000 births. A conference was held to discuss the relative value of various biochemical methods used to measure galactokinase, transferase, and uridine diphosphate galactose epimerase, the meaning of the various clinical variants of galactosemia, and the role of dietary treatment. The uridine diphosphoglucose consumption test, a widely used *in vivo* test for determining transferase activity, requires ideal conditions and is not suitable for routine use. A radiochemical method involving the conversion of labeled galactose-1-phosphate to uridine diphosphogalactose presents fewer technical problems. Various screening tests for routine use on newborns or other populations are also in use. The interrelations among classical galactosemia, the Duarte variant, and the Negro variant are not clearly understood, and additional studies with erythrocytes, leukocytes, and fibroblasts are needed. The restriction of galactose in the diet is generally agreed to be life-saving during early infancy and useful in prevention of cataracts; however, its efficacy with regard to intellectual development is debatable. The papers included in this collection would be of interest to physicians and biochemists. (453 refs.)
M. G. Conant.

CONTENTS: General Considerations; Biochemical Methods; Genetic Variations; Clinical Management.

173 KOMROWER, GEORGE M. The seven ages of galactosemia. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 5-12.

The history of galactosemia, an inborn error of metabolism characterized by a specific inability to metabolize the galactose produced by hydrolysis of lactose in the intestine, is divided into 7 ages which include an age of basic understanding, an age of clinical observation, an age of elucidation, an age of inheritance, an age of elaboration, an age of pathogenesis, and an age of screening. Why the disease rapidly progresses to death in some cases and not in others, what the value of the galactose-free diet is with respect to mental status at age 10 or 15, and what the significance is of the galactitol found in various body sites remains unknown. In addition, the explanation for the alternative pathways which appear in some cases is also unknown. (43 refs.) - *M. G. Conant.*

174 SIDBURY, J. B., JR. Investigations and speculations on the pathogenesis of galactosemia. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969. p. 13-29.

Evidence suggests that, in galactosemia, the formation and accumulation of galactitol in the lens cells plays an important role in initiating the production of galactose-induced cataracts. The consequent loss of lens glutathione may then inactivate glutathione peroxidase and permit hydrogen peroxide to accumulate to toxic levels, and this peroxide denatures the lens protein. Symptoms which

affect the liver include jaundice, hypoprothrombinemia, hepatosplenomegaly, and cirrhosis; cirrhosis only, is found in galactosemic humans and not in experimental animals. The livers of rats fed high-galactose diets show alterations in the kinetics of nucleotide incorporation into the microsomal fraction, an alteration of adenine nucleotide ratios, a disappearance of normal levels of GTP, new uridine compounds in place of UMP, and an immediate decrease of carbon-14 leucine incorporation into liver protein; however, these findings may not be relevant to humans, since rats do not show cirrhosis under the experimental conditions. Symptoms of galactosemia in the brain and kidneys have not yet been reconciled with the biochemical alterations. (63 refs.) - *M. G. Conant.*

175 SCHWARZ, V. Galactose oxidation methods. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 37-41.

A method of determining galactose as galactose-1-phosphate in erythrocyte extracts is described in which barium phosphates are hydrolyzed with hydrochloric acid, the hydrolysate is incubated with a galactose oxidase reagent containing enzymes, o-dianisidine, and purified alcohol, and the optical density of the solution is measured. There is good agreement between the values obtained by this method and those found by routine chromatographic methods, and this method requires less time and has a much reduced health hazard. (3 refs.) - *M. G. Conant.*

176 SEGAL, STANTON. Isotopic studies of galactose oxidation in galactosemia. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 42-51.

The *in vivo* measurement of galactose metabolism by intravenous injection of carbon-14-labeled galactose into human Ss followed by assay of labeled carbon dioxide in samples of expired air has provided insight into galactose metabolism in congenital galactosemia. The oxidation of galactose labeled in the 1-position, which resembles that of glucose labeled in the 1-position, is very slow for Caucasian galactosemic Ss compared to normal Ss, while for some Negro patients, who probably have a variant of the galactosemic syndrome, the oxidation resembles the normal curve. Galactose oxidation appears to be enhanced in galactosemic patients by the administration of methanol when small amounts of the sugar are used, but not when one gram quantities of galactose are used. Galactose labeled in the 1-position is metabolized much more extensively than galactose labeled in the 2-position; this suggests that the residual ability to metabolize galactose in galactosemic patients may be due to a direct oxidative pathway. (13 refs.) - *M. G. Conant.*

177 HANSEN, R. G. Some chemical aspects of galactosemia. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 55-65.

The chemical method of determining the level of galactose-1-phosphate uridyl transferase, the enzyme which is deficient in galactosemia, involved incubation of the red blood cells with excess galactose-1-phosphate and uridine diphosphoglucose. The transferase levels in galactosemic patients are near zero, and the levels in heterozygotes are approximately 1/2 those of normal persons (although considerable overlap occurs in these last 2 groups). In the United States, the incidence of galactosemia is between to 1/70,000 live-births as found in Britain and 1/18,000 as calculated from the chemical data on heterozygote frequency. Caution should be used in considering the pyrophosphorylase pathway in relation to alternate pathways for the metabolism of galactose since more studies are required. (13 refs.) - *M. G. Conant.*

178 TEDESCO, T. A.; & MELLMAN, W. J. The UDP Glu consumption assay for Gal-1-P uridyl transferase. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 66-71.

A modification of the uridine diphosphoglucose (UDP-glucose) consumption assay for galactose-1-phosphate uridyl transferase is described in which the enzyme preparations are preincubated with dithiothreitol, (a thiol reducing agent) to eliminate sources of UDP-glucose utilization other than the transferase and to restore loss of enzyme activity due to oxidation of essential sulfhydryl groups. Michaelis constants and pH optima for both UDP glucose and galactose-1-phosphate for leukocytes, erythrocytes, and cultured fibroblast cells were found to be similar for the 3 cell types. This method provides a reliable and accurate quantitative estimation of transferase activity. (9 refs.) *M. G. Conant.*

179 BEUTLER, E.; & MITCHELL, M. UDP glu consumption methods. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 72-82.

A modification of the uridine diphosphoglucose (UDP glucose) consumption method for the estimation of galactose-1-phosphate uridyl transferase activity (in which an erythrocyte hemolysate is incubated with nicotinamide adenine dinucleotide nucleosidase [NADase], galactose-1-phosphate is added, and the optical density of the solution determined) has been found to be reliable and reproducible. The lack of linearity, which is common to all UDP glucose consumption techniques, was found to be related to competitive inhibition of transferase by uridine diphosphogalactose as well as to desaturation of the enzyme with UDP glucose. The technique presented here minimizes the lack of linearity due to desaturation of the enzyme and provides correction for the nonlinearity which does occur. The method also provides a correction which occurs with some lots of UDP glucose dehydrogenase and nicotinamide adenine dinucleotide. (10 refs.) - *M. G. Conant.*

180 BERGREN, W. R.; NG, W.; & DONNELL, G. UDP gal-4-epimerase activity and gal-1-P uridyl transferase assay in hemolysates from newborns. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 83-88.

Galactose-1-phosphate uridyl transferase activity in hemolysates from newborns was studied by the uridine diphosphoglucose (UDP glucose) consumption method and a radioactive method in which labeled galactose-1-phosphate is converted to the labeled nucleotide sugar. The latter method is a direct assay for the enzyme and is a more reliable measure of transferase activity since any influence of uridine diphosphogalactose-4-epimerase is minimized. By the UDP glucose consumption assay, the mean transferase activity for newborns was lower than for adults, while by the labeled method, newborns were found to have a higher mean hemolysate transferase activity than normal adults. The error of the UDP glucose consumption assay was found to be directly related to the magnitude of epimerase activity in the newborns, which is related in turn to the absence of erythrocyte nicotinamide adenine dinucleotide nucleosidase (NADase) in newborns. In newborns and in some adults, especially of the Negro race, a deficiency of erythrocyte NADase is independent of epimerase activity. (12 refs.) *M. G. Conant.*

181 ROBINSON, ARTHUR. Introductory comments on carbon 14 methods. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 94-97.

In carbon 14 methods of enzyme determination in galactosemia, red blood cells are lysed, incubated with galactose labeled in the 1-position with carbon-14, extracted with water, and subjected to ascending chromatography; the strips are counted in a scintillation counter, and the radioactivity distribution gives peaks corresponding to galactose, galactose-1-phosphate, and uridine diphosphogalactose. The red cell lysates quantitatively obey expected theoretical relations governing the rate of the early steps in galactose metabolism, and the cellular rate constants can be determined easily. (2 refs.) - *M. Conant.*

182 NG, W. G.; BERGREN, W. R.; & DONNELL, G. N. Assay of hemolysate gal-1-P uridyl transferase activity by radioactivity. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 98-104.

To assay galactose-1-phosphate uridyl transferase activity, hemolysates are incubated with optimum concentrations of uridine diphosphoglucose (UDP glucose) and labeled galactose-1-phosphate; they are then denatured and chromatographed on a DEAE cellulose strip. The strips are counted in a scintillation counter, and the activity of erythrocyte galactose-1-phosphate uridyl transferase is expressed in terms of micromoles of uridine diphosphogalactose formed. Under exact conditions of chromatographic separation and with labeled galactose-1-phosphate of the highest purity possible, this method can distinguish between normal persons, homozygotes, and heterozygotes for galactosemia. In contrast to the UDP glucose consumption assay, this method measures product formation and is applicable to assays of low transferase activity. In addition, it can be used in tissues where other pathways for UDP glucose consumption are present (liver preparations and fibroblast cell cultures). (25 refs.) *M. G. Conant.*

183 INOUYE, TOHRU; NADLER, H. L.; & HSIA, DAVID YI-YUNG. Some characteristics of gal-1-P uridyl transferase of human white blood cells. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 105-112.

Incubation mixtures containing labeled galactose-1-phosphate, uridine diphosphoglucose,

glycylglycine, EDTA, cysteine, and the hemolysate from red blood cells or lysate from white cells were analyzed to determine whether the galactose-1-phosphate uridyl transferase differed. The pH activity curves of leukocytes were markedly different from those of red blood cells, and the enzymes reacted differently to cysteine; this suggests that there is a structural difference in transferase from red cells and white cells, and that the reduction by cysteine which leads to loss of activity must involve alterations of molecular structure. The activity of the enzyme prepared from both red and white blood cells was directly related to the amount used in the incubation, although assay values for transferase prepared from white cells varied approximately 5 times as much as those for the enzyme prepared from red cells. (20 refs.) - *M. G. Conant.*

184 NADLER, H. L.; INOUYE, TOHRU; & HSIA, DAVID YI-YUNG. Classical galactosemia: A study of fifty-five cases. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 127-139.

Fifty-five patients with classical galactosemia (no detectable galactose-1-phosphate uridyl transferase activity in erythrocytes and white blood cells) in 39 families were studied. The clinical symptoms observed included failure to thrive, diarrhea, vomiting, jaundice, hepatomegaly, cataracts, growth retardation, mean IQ below that of their siblings, and galactosuria. Other symptoms seen (probably related to malnutrition) were susceptibility to infections, ascites, and anemia. The disease is transmitted as an autosomal recessive and is best diagnosed by a direct enzyme assay of erythrocytes or white blood cells. Exclusion of galactose from the diet in early infancy may be life-saving; however, the effect of such treatment on intellectual development has not yet been established. Ingestion of galactose in older children or adults with galactosemia does not appear to be harmful. (25 refs.)
M. G. Conant.

185 BRANDT, N. J. Genetics of hereditary galactosemia. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 140-149.

Each of the 3 approaches which are used to quantitate the activity of galactose-1-phosphate uridyl transferase (UDP glucose consumption, manometric assay. and isotope techniques) has led to the conclusion that hereditary galactosemia is inherited as a simple autosomal recessive trait, and the individual concentration of transferase is an expression of the genotype. The abnormal homozygote has no significant activity of the enzyme, while the heterozygous carrier has an enzyme concentration close to 50% of normal homozygotes; there is no overlap between heterozygotes and homozygotes. Population studies in America and in Denmark have found a frequency of heterozygotes ranging from 1/45 to 1/72, with the variation probably due to racial differences and the presence of the Duarte variant; however, each study found the frequency of abnormal homozygotes to be about 1/20,000. The problems of allelism and of different racial patterns concerning both genotype and phenotype remain to be solved. (39 refs.)
M. G. Conant.

186 GITZELMANN, RICHARD. Galactokinase deficiency. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 155-159.

Galactokinase deficiency is an error of galactose metabolism transmitted as an autosomal recessive trait; the main clinical manifestations are juvenile cataracts, hypergalactosemia after galactose intake, and galactose-galactitol diabetes. Acute galactose intolerance symptoms, MR, liver disease, and severe proximal renal tubular dysfunction are not features of galactokinase deficiency. Early institution of a galactose-free diet will probably prevent the formation of cataracts, but the presence of the defect in the newborn is inconspicuous. Early detection through screening for hypergalactosemia is important. (13 refs.) - *M. G. Conant.*

187 BEUTLER, ERNEST. The Duarte variant. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 163-169.

Studies of families of individuals with 1/2 the normal galactose-1-phosphate uridyl transferase activity showed that transferase deficiency of the same quantitative magnitude observed in heterozygotes for galactosemia was also observed in homozygotes for another mutation--the Duarte variant. Examination of 2 families, each of which included one person possessing both the gene for galactosemia and the gene for the Duarte variant, showed that the normal gene for transferase, the gene for galactosemia, and the gene for the Duarte variant are all alleles and that the gene for the Duarte variant results in the production of about 1/2 the normal amount of enzyme. A

new electrophoretic technique for the detection of transferase on starch gel will facilitate the determination of the true prevalence of the Duarte variant. (13 refs.)
M. G. Conant.

188 MELLMAN, W. J.; & TEDESCO, T. A. The Duarte variant of gal-1-P uridyl transferase: Hemolysate and leukocyte activities of the transferase genotypes. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 170-175.

The activity of galactose-1-phosphate uridyl transferase was assayed by the uridine diphosphoglucose (UDP glucose) consumption method in hemolysates from 100 medical students. The Duarte variant was found in the heterozygous state with the wild-type gene (Gt^+/Gt^D) and with the galactosemia gene (Gt^D/Gt^G) as well as in the homozygous state (Gt^D/Gt^D). The frequency of the 3 transferase genes in this sample was Gt^+ (.955), Gt^D (.040), and Gt^G (.005); this suggests that approximately 8% of the population are heterozygous carriers for the Duarte variant gene, and 1% are heterozygotes for the galactosemia gene. The Gt^D gene in the hemolysate assay is expressed as 1/3 of normal or wild-type enzyme activity. Leukocytes from individuals with the Duarte variant showed a quantitative reduction in activity when compared to leukocyte assays from Gt^+/Gt^+ persons. (6 refs.)
M. G. Conant.

189 SEGAL, STANTON. The Negro variant of congenital galactosemia. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 176-185.

The Negro variant of galactosemia shows a phenotypic difference among the various tissues for the metabolism of galactose. These patients can oxidize 19-45% of intravenously administered labeled galactose to labeled carbon dioxide in 5 hours; this is compared to 0-8% in Caucasian galactosemic Ss, and 30-35% in normal Caucasians. Of 5 Negro galactosemics, 3 showed good growth, 2 were MR, 4 had cataracts, and 4 had hepatosplenomegaly. Most showed the syndrome of galactose toxicity in infancy which correlates with the erythrocyte deficiency of galactose-1-phosphate uridyl transferase. The mechanism which these patients do have for *in vivo* metabolism of galactose to carbon dioxide probably results from the ability of the liver to convert galactose to blood glucose prior to metabolic oxidation. (12 refs.)
M. G. Conant.

190 KROOTH, ROBERT S.; & DARLINGTON, GRETCHEN A. Studies on the behavior of diploid cell strains developed from tissues of galactosemics. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 188-203.

Growth experiments were performed on diploid cell strains from tissues of normal controls and of galactosemic Ss. The normal cells were found to grow in media containing 100 mg % galactose, if first preadapted by growth in a medium containing 5 mg % glucose while the mutant cells did not grow in media containing 100 mg % galactose, although they would grow in media containing 5 mg % glucose. Since galactose is selective against the growth of mutant homozygous galactosemic cells and adenosine has been found to be selective against the growth of mutant homozygous orotic aciduria cells, the growth of both of these cell types in a doubly selective medium containing galactose as the sole hexose and adenosine as the sole nucleotide was investigated. If the cells are separate, growth does not occur; however, if the cells are mixed together, growth does occur and is sustained. The mechanisms responsible for this growth are under investigation. (10 refs.)
M. G. Conant.

191 RUSSELL, JAMES D. Variation in UDP glu: Alpha-D-Gal-1-P uridyl transferase activity during growth of cultured fibroblasts. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 204-212.

Separated fibroblasts from individuals of the 3 genotypes (normal homozygous, heterozygous, and homozygous for galactosemia) were cultured under various conditions, and the transferase activity was assayed directly with labeled galactose-1-phosphate by measuring the labeled product of the transferase reaction--uridine diphosphogalactose. Transferase activity of both normal and galactosemic strains increased logarithmically during growth, and the galactosemic strain had low but significant activity after 160 hours. A comparison of 2 strains of the same genotype indicated that transferase activity is dependent on the age of the culture and the population density. It was also found that membrane integrity was not required for enzyme activity. Transferase activity in a normal strain seemed to correlate with the cell cycle--increasing during phase G-1, declining during the period representing deoxyribonucleic acid synthesis, G-2, and mitosis, and then increasing again. (11 refs.)
M. G. Conant.

192 KRONE, WINFRID; & BRUNSCHEDE, HORST. Stimulation of UDP glu-4-epimerase activity in human fibroblasts in cell culture by galactose. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 213-223.

The specific activity of uridine diphosphoglucose-4-epimerase increased in cells derived from a boy with a G/D-translocation trisomy and in 2 control cell strains which were cultured in a growth medium in which glucose was replaced by galactose. This effect may be due to an interaction of galactose with the fibroblasts. The specific activity of epimerase is higher at all stages of the growth period in extracts of galactose-grown cells than in those of glucose-grown cells. The effect of galactose appears to be highest during exponential growth. If the cells have previously been grown in galactose, the addition of cycloheximide (a protein synthesis inhibitor) causes the galactose effect to be inhibited by 14%; however, if the inhibitor and the galactose medium are added simultaneously to glucose-grown cultures, there is a 67% inhibition. (10 refs.) - *M. G. Conant.*

193 WELLS, W. W. Galactitol metabolism. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 227-242.

Galactitol can be produced from galactose in most animal tissues under favorable conditions, and toxicity may result from the accumulation of this metabolite. Galactitol acts as an inhibitor of phosphatidylinositol synthesis, although galactitol and other metabolites of galactose do not directly inhibit enzymes catalyzing the incorporation of glucose into myoinositol by the rat brain. Accumulation of galactitol may inhibit phosphatidylinositol systhesis, while inositol synthesis from glucose may be affected by brain glucose and glucose-6-phosphate concentrations. Extension of these observations to human galactosemia has not yet been made. (37 refs.) - *M. G. Conant.*

194 DONNELL, G. N.; KOCH, RICHARD; & BERGREN, W. R. Observations on results of management of galactosemic patients. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 247-268.

Forty-one galactosemic children (CA 16 mos to 19 yrs) from 31 families have been undergoing dietary restriction of galactose for up to 18 years (from the time of diagnosis). Dietary restriction of galactose did not prevent the children from having normal growth patterns and 2 untreated children have growth patterns significantly below the mean. The latest intellectual achievement tests for these patients show that 29 have IQs of 85 or more, 7 have IQs of 70 to 84, 2 have IQs of 55 to 69, and 3 are SMR. Of the 10 children over 10 years of age who have been under treatment for 10-19 years, all have some degree of visual-perceptual difficulty, and of 17 children aged 5-10 years, many have shown signs of emotional disturbance. Patients who have been treated from birth appear to do better than those who have had exposure to milk for varying periods of time, and all have IQs or DQs in the normal range. Some children who were diagnosed later have made satisfactory progress, however. (21 refs.) *M. G. Conant.*

195 BEUTLER, ERNEST. Galactosemia screening methods. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 276-283.

Three techniques of screening for galactosemia are described; all depend upon the reduction of nicotinamide adenine dinucleotide phosphate (NADP) through a series of reactions starting with galactose-1-phosphate uridyl transferase and going to phosphoglucomutase, glucose-1-phosphate dehydrogenase, and phosphogluconic dehydrogenase. In the dye-decolorization method, methylene blue is reduced by reduced NADP under anaerobic conditions in the presence of reduced NADP oxidase. In the qualitative and quantitative fluorescent methods, the fluorescence of reduced NADP is used to detect the presence of transferase. All 3 methods are capable of detecting homozygotes for galactosemia, and the dye-decolorization method and quantitative fluorescent screening method can also detect heterozygotes. (14 refs.) - *M. G. Conant.*

196 DAHLQVIST, A.; & ROSENTHAL, I. Screening for galactose in urine with a specific test paper. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 287-290.

A galactose-specific test paper for urine analysis consists of an adsorbent strip of phosphate-treated DEAE paper through which the urine must pass before it reaches the color reagent portion of the test paper. The color reagent part of the strip has galactose oxidase, peroxidase, and ortho-tolidine as reagents. The adsorbent strip effectively

removes any inhibitors in the urine which might prevent the action of galactose oxidase. The urine is diluted 1:10 before the analysis so as to give a positive reaction only when the concentration of galactose in the urine is 100 mg % or more. This test paper is specific, simple to use, and convenient. (9 refs.) - *M. G. Conant.*

197 MAYES, JARY S. Screening for heterozygotes of the galactose enzyme deficiencies. In: Hsia, David Yi-Yung, ed. *Galactosemia*. Springfield, Illinois, Charles C. Thomas, 1969, p. 291-296.

Levels of galactose-1-phosphate uridyl transferase, galactokinase, and epimerase in human red blood cells were determined. Of 210 samples, 3 were heterozygous for galactosemia (as determined from transferase levels which are approximately 1/2 normal). This heterozygous frequency indicates that galactosemia should occur in 1/19,600 births. Galactokinase levels in 642 persons were assayed, and 6 individuals were considered to be heterozygous for galactokinase deficiency. According to this data, the frequency of this disease should be 1/45,800 births. The heterozygous condition is inherited and, in most cases, segregates independently. In the blood samples measured for epimerase (most in family studies connected with heterozygotes for transferase and/or epimerase), no decreased values were found. (20 refs.) - *M. G. Conant.*

198 McKHANN, GUY M.; HO, WILLIAM; RAIBORN, CHARLES; & VARON, SILVIO. The isolation of neurons from normal and abnormal human cerebral cortex. *Archives of Neurology*, 20(5): 542-547, 1969.

Abnormal neurons were isolated from a patient with Tay-Sachs disease, and the cells were maintained in tissue culture for 7 days. During this time, the cells continued to accumulate abnormal storage material. In addition, neurons were dissociated from fresh and frozen cerebral tissue from one control S and 2 Ss with neuronal storage disorders, and pellets rich in abnormal cells were recovered from the diseased Ss. The abnormal neurons contained excessive amounts of lipid, withstood freezing and thawing better than normal cells, and were obtained in higher yield. The cells in normal brain tissue were fragile, and did not contain refractile material such as that found in the abnormal cells. The nature of the stored material in infantile neuronal storage disease is still unknown, and it is less refractile than the storage material found in Tay-Sachs disease. (6 refs.) - *F. J. McNulty.*

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199 OKADA, SHINTARO; & O'BRIEN, JOHN S. Tay-Sachs disease: Generalized absence of a beta-D-N-acetylhexosaminidase component. *Science*, 165(3894):698-700, 1969.

Two hexosaminidase components, separable by starch-gel electrophoresis and possessing both β-D-N-acetylglucosaminidase and β-D-N-acetylgalactosaminidase activity, are present in human tissues. One of these, hexosaminidase component A, is absent in brain, liver, kidney, skin, cultured skin fibroblasts, blood plasma, and leukocytes from 9 patients with Tay-Sachs disease. Hexosaminidase assay may facilitate the early diagnosis of individuals homozygous for Tay-Sachs disease. (15 refs.) - *Journal abstract.*

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200 FOLEY, KATHLEEN M.; DANES, B. SHANNON; & BEARN, ALEXANDER G. White blood cell cultures in genetic studies on the human mucopolysaccharidoses. *Science*, 164(3878):424-426, 1969.

Cultures of white cells derived from peripheral blood of individuals homozygous and heterozygous for the inherited mucopolysaccharidoses revealed a distinct intracellular metachromatic staining with toluidine blue O. These short-term cultures circumvent the technical problems of skin fibroblast cultures and provide a simple screening procedure to detect the heterozygous state for the mucopolysaccharidoses, as well as offering an opportunity to study the heterozygous state of various inherited storage diseases. (12 refs.) - *Journal abstract.*

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201 HENCHMAN, D. C.; & McINTOSH, A. J. A cretin with jaundice requiring exchange transfusion. *Australian Paediatric Journal*, 4(3):203, 1968.

Neonatal hyperbilirubinemia, sufficient to require an exchange transfusion, was noted in

an infant male who was subsequently shown to have hypothyroidism as the etiology of his jaundice. Serum bilirubin values remained below neurotoxic levels after the blood exchange, and treatment with thyroxine resulted in normal physical development during the first year of life. (No refs.) - *E. L. Rowan.*

Canberra Community Hospital
Canberra, Australia

202 PONTE, C.; NUYTS, J. P.; DEHAENE, PH.; & RYCKEWAERT, PH. Le gigantisme cerebral (Cerebral gigantism). *Medecine Infantile*, 75(6):409-416, 1968.

Cerebral gigantism is a syndrome characterized by accelerated increases in weight and height from birth, rapid bone maturation, MR, and cranio-facial dysmorphy which resembles acromegaly. Two boys with this syndrome, both of whom are 4 standard deviations above normal in weight and height, are reported. Their IQ scores were 77 and 60, and both were abnormally large at birth. There is no known pathogenic explanation for this syndrome. (22 refs.) - *M. G. Conant.*

No address

203 EICHENWALD, HEINZ F.; & FRY, PEGGY CROOKE. Nutrition and learning. *Science*, 163(3868):644-648, 1969.

Studies in infant animals and humans show that early nutritional deficiencies affect physical growth and may produce irreversible mental and emotional changes. Calorie and protein deficiencies result in the delayed maturation of biochemical processes which may adversely affect the growth and maturation of the central nervous system (CNS). Children with marasmus or kwashiorkor are characterized by apathy, EEG abnormalities, and short stature. Malnutrition alone cannot be implicated in decreased learning ability because it is usually found in association with recurrent infections and sensory and emotional deprivation. Laboratory research must determine the critical times in human CNS development and the relations among nutrition, nervous tissue physiology, and mentation. Valid tests of intellectual function must be developed for pre-industrialized societies. Paradoxically, better nutrition with subsequent higher intelligence and decreased apathy can be expected to lead to agitation for social, cultural, and political reforms. Recognition of this possibility may handicap attempts to reduce malnutrition in many areas of the world. (33 refs.) - *E. L. Rowan.*

University of Texas
Dallas, Texas 75235

204 CHASE, H. PETER; & MARTIN, HAROLD P. Undernutrition and child development. *New England Journal of Medicine*, 282(17):933-939, 1970.

When 19 children who had been hospitalized with undernutrition in the first year of life were compared with a control group 3 to 4 years later, the test group was found to be lower in height, weight, head circumference and developmental quotient. Impairment of physical and mental development appeared to correlate with the duration of undernutrition in the first year of life. Nine children admitted to the hospital with undernutrition but treated in the first 4 months of life now have a mean developmental quotient of 95, which is similar to the mean of 99 for the control children. In 10 with undernutrition after 4 months of age, low indexes for height, weight and head circumference were more frequent, and the mean developmental quotient was 70. Social factors associated with undernutrition included paternal separation, alcohol-related problems, inadequate money and many young siblings. (23 refs.) *Journal abstract.*

University of Colorado Medical Center
Denver, Colorado 80220

205 NAEYE, R. L.; DIENER, M. M.: DELLINGER, W. S.; & BLANC, W. A. Urban poverty: Effects on prenatal nutrition. *Science*, 166 (3908):1026, 1969.

Infants of poor (as measured by an index) mothers were 15% smaller than infants of non-poor mothers. Infants from poor families had multiple anatomic evidences of prenatal undernutrition. (8 refs.) - *Journal abstract.*

Hershey Medical Center
Hershey, Pennsylvania 17033

206 POND, W. G.; STRACHAN, D. N.; SINHA, Y. N.; WALKER, E. F., JR.; DUNN, J. A.; & BARNES, R. H. Effect of protein deprivation of swine during all or part of gestation on birth weight, postnatal growth rate and nucleic acid content of brain and muscle of progeny. *Journal of Nutrition*, 99(1):61-67, 1969.

Protein deprivation during all or part of gestation in gilts reduced the birth-weight and growth rate of progeny; however, the deoxyribonucleic acid (DNA) content and fresh weight of the cerebrum and cerebellum were not affected. The birth-weight and postnatal growth rate of the group supplemented with protein during the period of implantation (days 16 to 20) were greater than those found in the group deprived of protein throughout gestation. Ribonucleic acid/gram in the brain was decreased by maternal protein deprivation; this suggests decreased protein synthesis. Total dry matter, protein, DNA, and RNA concentrations of skeletal muscle were not significantly affected, while the RNA/DNA ratio was reduced in the young. (21 refs.) - *L. S. Ho.*

Cornell University
Ithaca, New York 14850

207 MURTHY, D. Y. N.; GUTHRIE, R. A.; WOMACK, W. N.; & *JACKSON, R. L. Insulin binding in children with diabetes mellitus. *Pediatrics*, 43(4):558-566, 1969.

Insulin binding by the serum of diabetic children under insulin therapy for more than 6 months was significantly higher than that of non-diabetic and non-treated diabetic children. Binding of bovine insulin was greater than that of porcine insulin in children with the greatest insulin binding activity, in girls during pre-pubertal growth period, and in children who had had local skin reactions to insulin injection. Three children (one MR boy) with high insulin binding activity and an insulin requirement higher than 1.1 unit/kg/day were selected for further study. Replacement of bovine insulin with porcine insulin decreased the insulin binding and the dosage required to control diabetes in 2 of the children. The third child showed increased binding to both bovine and porcine insulin. Administration of dealinated porcine insulin to this child resulted in only temporary reduction of the insulin requirement. (34 refs.) - *L. S. Ho.*

*University of Missouri Medical Center
Columbia, Missouri 65201

New growths

208 BREAKEY, W. R. Tryptophan loading in tuberous sclerosis. *Journal of Mental Deficiency Research*, 13(3):197-200, 1969.

Six patients with tuberous sclerosis who were receiving anticonvulsive therapy and sedatives were matched for age, sex, and weight, with 6 controls who were MR, but not epileptic or affected with Down's syndrome and who were receiving smaller doses of sedatives. The 12 Ss received loading doses of tryptophan, and the increased xanthurenic acid excretion was determined by comparison of preloading and postloading values. One of the patients with tuberous sclerosis showed markedly increased xanthurenic acid excretion; however, the other 5 patients showed a distribution very similar to that of the controls. The number of Ss is too small to justify statistical analysis, but the results suggest that there is no difference between the 2 groups. (10 refs.) - *M. G. Conant.*

Cornell University
White Plains, New York 10605

209 KRAMER, SIMON. Radiation therapy in the management of brain tumors in children. *Annals of the New York Academy of Sciences*, 159(2):571-584, 1969.

Radiation therapy may be the treatment of choice in several brain tumors of childhood. Although the fetal brain is highly susceptible to radiation, children tolerate exposure as well as do adults, and no evidence of motor or mental retardation has been noted as a result of treatment. The rapidly invasive medulloblastoma is very susceptible to radiation (40% 5-year survival) but must first be differentiated histologically from the relatively benign astrocytoma. Tumors arising in the pituitary region such as craniopharyngiomas, gliomas of the optic nerve, and pinealomas may cause pressure damage to other neural structures, and after surgical identification and decompression, they respond very well to radiation. Survivors may require medication for pituitary hypofunction, but brain damage has not occurred. A dosage range of 5,500 to

6,000 rads over 5 1/2 to 8 weeks is used for all these brain tumors. (7 refs.)
E. L. Rowan.

Jefferson Medical Center
Philadelphia, Pennsylvania 19107

210 HAERER, ARMIN F.; JACKSON, JOHN F.; & EVERS, CARL G. Ataxia-telangiectasia with gastric adenocarcinoma. *Journal of the American Medical Association*, 210(10):1884-1887, 1969.

Five members of a Negro sibship of 12 developed ataxia-telangiectasia, and 2 of these later succumbed to strikingly similar mucinous adenocarcinomas of the stomach. Scleral telangiectasia and progressive neurological deficits were noted in all 5 affected sibs before death. Only one patient was investigated immunologically, and she had markedly decreased IgA levels, a decreased mitotic index, and a decreased lymphoblastic transformation index. Thymic dysplasia, abnormal lymphoid tissue, and ovarian dysgenesis were also present. Tumors of the central nervous system, lymphoreticular system, and ovary have been recorded in association with this syndrome, but in view of the present cases, this association should be broadened to include neoplasms in general. (14 refs.)
E. L. Rowan.

2500 North State Street
Jackson, Mississippi 39216

211 MANN, JILLIAN R.; RAYNER, P. H. W.; & GOUREVITCH, A. Insulinoma in childhood. *Archives of Disease in Childhood*, 44(236): 435-442, 1969.

A 12-year-old girl presented for the first time in a hypoglycemic coma which responded very slowly to conventional therapy. This suggested an insulinoma which was found at surgery. Postoperatively, the patient had no further hypoglycemic episodes, but there was residual brain damage manifest as aggression, mild MR, and dysarthria. A total of 34 cases of pediatric insulinoma are reported in the literature, and 4 additional cases were discovered in a survey of all pediatric departments in the United Kingdom. Insulinoma is a rare cause of hypoglycemia under age 4, but it is a common cause of hypoglycemia after age 4. A raised fasting plasma insulin is the most useful diagnostic criterion, and surgery is the treatment of choice. Of the 37 children with a benign pancreatic islet cell adenoma (insulinoma) which was surgically removed, over 1/2 were cured, but 8 (including this case) had residual neurological damage. (47 refs.) - *E. L. Rowan.*

Children's Hospital
Ladywood Middleway
Birmingham, 16, England

Prenatal influence

212 LOGUE, VALENTINE. Hydrocephalus. In: Cumings, John N.; & Kremer, Michael, eds. *Biochemical Aspects of Neurological Disorders: Third Series*. Oxford, England, Blackwell Scientific Publications, 1968, Chapter 15, p. 214-234.

Of the many surgical treatments for hydrocephalus, ventriculovenous shunting has the best prognosis in children with both communicating and obstructive hydrocephalus. In adults, the valved shunt works quite well for communicating hydrocephalus (a 93% success rate) while the Torkildsen procedure (a 78% success rate) is more suitable for obstructive hydrocephalus. The distinction between the 2 types is becoming less important because modern valvular shunting procedures use the ventricle as the draining reservoir regardless of the site of obstruction. In young people, the sites of obstruction are mainly at the 2 isthmi, the aqueduct, or the outlet of the fourth ventricle. In adults, tumor is the most frequent cause, and the sites of obstruction are spaced more evenly throughout the pathway. Air study is the standard method for localization of the obstruction. In communicating hydrocephalus, air enters ventricles easily but does not reach above the interpeduncular or suprasellar cistern. In 11% of congenital hydrocephalus, air progresses beyond the chiasma, and 40% of the normal

controls show no air in the convexity subarachnoid space. Injection of ^{131}I-labeled human serum albumin into the cisterna magna is a good method for studying CSF flow, and this method can also be used to demonstrate blocked shunts and to diagnose differentially adult hydrocephalus. Treatments other than ventriculo-venous shunting and Torkildsen's procedure include plexectomy, anterior ventriculostomy, extra-cranial diversions, ventriculo-pleural and peritoneal shunts, and arachno- or spino-peritoneal diversions. (12 refs.) - *L. S. Ho.*

213 GUTHKELCH, A. N.; & RILEY, N. A. Influence of aetiology on prognosis in surgically treated infantile hydrocephalus. *Archives of Disease in Childhood*, 44(233): 29-35, 1969.

The etiology of hydrocephalus in 166 infants who were treated with ventriculo-atrial drainage was a significant factor in the mortality and morbidity following this relatively standardized operation. Eighty-two cases of hydrocephalus were complications of spina bifida, and of these, 21% died and 37% of the survivors had MR. Aqueductal stenosis was often not recognized until marked head expansion had occurred and was associated with the worst prognosis as 33% died while 50% of the survivors were MR. Cranium bifidum was associated with 25% mortality and MR in 50% of the survivors. Exit foramen block as the fourth category of congenital hydrocephalus occurred only twice in the series, and both children were alive and of normal intelligence. Post-meningitis encephalitis had not been reported for 6 years, but in earlier cases the mortality was 23% and MR was noted in 54% of the survivors. Non-infective communicating hydrocephalus was associated with the best prognosis as only 11% died, and only 25% of the survivors were MR. Regardless of intervening procedures, severe MR was associated with developmental anomalies of the brain, previous bacterial infection, and mechanical damage secondary to ventricular distention or birth trauma. Early operation is essential in arresting the hydrocephalic process, but it cannot overcome preexisting damage. (9 refs.) - *E. L. Rowan.*

Royal Infirmary
Hull, England

214 GRANHOLM, LARS. Electrolyte and acid/base concentrations in arterial blood and cerebrospinal fluid in experimental hydrocephalus. *Acta Neurologica Scandinavica*, 44(5):651-656, 1969.

Electrolyte and acid/base parameters of the cerebrospinal fluid (CSF) were not affected during experimental hydrocephalus induced by cisternal injection of kaolin in rabbits. This indicates that the homeostatic mechanisms of the CSF are sufficiently adequate to maintain a stable brain electrolyte and acid/base milieu in hydrocephalus. Plasma sodium and chloride levels were significantly higher in hydrocephalic animals; this was probably a sign of moderate dehydration. (22 refs.) *L. S. Ho.*

Lasarettet
Lund, Sweden

215 MILHORAT, THOMAS H. Choroid plexus and cerebrospinal fluid production. *Science*, 166(3912):1514-1516, 1969.

Acute progressive hydrocephalus occurred in 76 rhesus monkeys undergoing ventricular obstruction 2 to 6 months after choroid plexectomy and was only slightly less pronounced than in 73 nonplexectomized animals with similar ventricular obstructions. The composition of cerebrospinal fluid after choroid plexectomy was essentially normal. Experiments with ventricular perfusion techniques indicate only a slight reduction in cerebrospinal fluid production after choroid plexectomy. Thus, the choroid plexus is probably not the sole or even the major source of cerebrospinal fluid within the primate ventricular system. (14 refs.) - *Journal abstract.*

National Institutes of Health
Bethesda, Maryland 20014

216 UDWADIA, T. E. Treatment of hydrocephalus using saphenous vein homograft. *Archives of Disease in Childhood*, 44(235): 422-427, 1969.

In India, it is not economically feasible to treat hydrocephalus with shunts using commercial valves, and more "conventional" procedures are still used. Uniformly depressing results were obtained in a group of 55 patients who received peritoneal, ureteric, and sagittal sinus shunts. The arrest rate of 38% was not different from the natural spontaneous arrest rate of 45%. Peritoneal shunt with excision of the omentum showed the best

results. Fifteen patients received a ventricular-jugular shunt with an interposed strip of saphenous vein used as the valve. The natural valve in the vein prevented regurgitation of blood into the ventricle. In 9 of these 15 patients, the hydrocephalus was arrested, and this procedure may prove to be extremely useful in countries that are improving their socio-economic status. (3 refs.) - *E. L. Rowan.*

Cook's Building
D. Naoroji Road
Bombay, India

217 FRANKS, ROBERT C. Pituitary-adrenal function in arrested hydrocephalus. *Journal of Clinical Endocrinology and Metabolism*, 29(6):864-865, 1969.

Hydrocephalus, like other disorders of the central nervous system, is not predictably associated with alterations in the neurophypophyseal control of ACTH secretion. The diurnal variation of plasma 17-hydroxycorticosteroids (17-OHCS) and the response to metyrapone were determined in 20 patients with arrested hydrocephalus. Only 4 did not show the expected diurnal variation of 17-OHCS. Just one patient had a subnormal response to metyrapone, and 2 of the 14 who responded normally, showed a subsequent change in the diurnal variation of 17-OHCS. (8 refs.) *E. L. Rowan.*

Vanderbilt University School of Medicine
Nashville, Tennessee 37203

218 ROBERTSON, CHARLES H.; LUND, RONALD R.; SOROOSH, FARHANG; & *CHEATHAM, GOODE R., JR. Percutaneous fetal ventriculography: A new technic and case report. *Obstetrics and Gynecology*, 34(6):841-846, 1969.

A diagnosis of fetal hydrocephalus was confirmed by percutaneous puncture of the fetal ventricle and introduction of nitrous oxide for contrast radiography. The fetus had only 2 mm of cerebral cortex and attempts at salvage were not warranted. This diagnostic technique might identify infants whose hydrocephalus had not progressed, and who had at least 1 cm of cortex. In such cases a transabdominal delivery and early shunting might be feasible. (6 refs.) - *E. L. Rowan.*

*313 South Melrose Street
Casper, Wyoming 82601

219 AMADOR, LOUIS V.; JARA, OSCAR; & PORRAS, CESAR L. Valvulography: A test for patency of Holter valve shunts. *American Journal of Diseases of Children*, 117(2):190-193, 1969.

A simple radiographic technique to test the patency of Holter valve shunts is more reliable than manual pumping and less complicated than radioisotope studies. In 16 children admitted for recurring hydrocephalus after shunting, a needle was placed in the valve. Continued aspiration of cerebrospinal fluid demonstrated the patency of the proximal tubing. A small amount of contrast material (Hypaque) was then injected into the valve. A collapsed valve, partial or complete blockage of the distal tubing, or obstruction in the vein could be demonstrated on cine and spot radiographs. It was possible by using this technique to determine if specific components of the system needed replacement and if the same side could be used for a repeat operation. No complications were noted. (7 refs.) - *E. L. Rowan.*

700 North Michigan Avenue
Chicago, Illinois 60611

220 GABRIELE, ORLANDO F.; & CLARK, DANIEL. Calcified thrombus of the superior vena cava: Complication of ventriculoatrial shunt. *American Journal of Diseases of Children*, 117(3):325-327, 1969.

A boy who had had ventriculoatrial shunting with a Holter valve performed at age 4 months because of congenital obstructive hydrocephalus presented again at age 6 years with signs of increased intracranial pressure. Plain films of the chest revealed a large oval calcification superimposed on the tip of the shunt tubing in the superior vena cava. A superior vena cavogram confirmed the presence of a calcified thrombus on the medial wall of the cava which, however, was not obstructed. Thromboembolic complications of ventriculoatrial shunts apparently result from a foreign body reaction to the catheter or at sites of trauma. Calcification of such a thrombus is quite uncommon. (9 refs.) - *E. L. Rowan.*

University of North Carolina
Chapel Hill, North Carolina 27514

221 MORLEY, A. R. Laryngeal stridor, Arnold-Chiari malformation and medullary haemorrhages. *Developmental Medicine and Child Neurology*, 11(4):471-474, 1969.

In 2 cases of meningomyelocele with laryngeal stridor and palatal palsies, the Arnold-Chiari malformation was accompanied by bilateral medullary hemorrhages. In such cases, vascular factors may be important in the pathogenesis of cranial nerve paralyses. (13 refs.) - *Journal summary.*

University of Newcastle-upon-Tyne
Newcastle-upon-Tyne, England

222 FORMBY, D.; & BUISSON, J. Antibiotic spray during and after closure of myelomeningoceles. *Australian Paediatric Journal*, 5(1):3-7, 1969.

The use of an antibiotic spray during and after closure of myelomeningoceles was found to be of benefit in the avoidance of subsequent damaging or fatal infections. Of 30 infants studied, 14 were administered an antibiotic spray and 16 were not; however, 2 untreated Ss were eventually excluded from statistical analysis. Of those infants treated, 14% developed infections while 71% of those not sprayed developed infections. In addition, the average hospital stay for treated infants was 27.6 days while the average stay for the untreated group was 40.7 days. Because of the possibility of toxic absorption, the maximum dose of antibiotic for this procedure is Neomycin sulfate: 50,000 U, Polymyxin B sulfate: 15,000 U, and Zinc Bacitracin sulfate: 3,700 U. (8 refs.) *B. Bradley.*

Princess Margaret Hospital for Children
Perth, Australia 6001

223 OTT, JOHN E.; & *ROBINSON, ARTHUR. Cerebral gigantism. *American Journal of Diseases of Children*, 117(3):357-368, 1969.

An 11 1/2-year-old white girl, who was studied annually since her fifth year because of her large stature was determined to have cerebral gigantism. The patient had abnormal speech, and 2 nodules were found on the true vocal cords. These nodules developed after the abnormal speech was noted. The voice spectrogram demonstrated a wider than normal pitch frequency range. Dermatoglyphically, the S had an unusual thenar exit position of the planar A line on the left hand and vertical palmar alignment as well as a high total digital ridge count of 236. Her palms and soles were large for her CA. A battery of psychological tests including intelligence, projective, and perceptual tests indicated that she was an anxious, depressed, inhibited girl of normal intelligence who feared failure and had moderate perceptual problems. The 33 cases of cerebral gigantism reported in the literature are characterized by large stature, typical facies, nonprogressive neurological disorder, and MR. The proband in this case was not MR although the other symptoms of this syndrome were manifest. In addition, specific muscle weaknesses were found in this girl--this finding has not been previously reported. (27 refs.) - *F. J. McNulty.*

*University of Colorado Medical Center
Denver, Colorado 80220

224 MILIC, ANN M. B. Racial factors in anencephaly: A comparison of cases among American Negroes and Caucasians. *American Journal of Obstetrics and Gynecology*, 104(1): 134-139, 1969.

Of 66 cases of anencephaly born in Columbia-Presbyterian Medical Center between January 1942 and January 1967, 8 were Negroes (incidence of 0.028%) and 58 were Caucasian (incidence of 0.087%). Complications of pregnancy, intrauterine death, placental aging, fetal growth retardation, and premature delivery were more common among Negro patients; however, average weight and gestation length for Negroes were similar to Caucasians with complicated pregnancies. Caucasians with uncomplicated pregnancies had lower rates of fetal mortality, less difference between expected normal and anencephalic weight, a lower female:male ratio, and a lower incidence of previous abortions than Negroes. The lower incidence of anencephaly and the preponderance of female anencephalic fetuses may be due to earlier intrauterine death and abortion among Negro mothers. Differences in the adequacy of the intrauterine environment may also be important. (16 refs.) - *M. G. Conant.*

630 West 168th Street
New York, New York 10032

225 NILES, JOHN H.; & LOWE, ERNEST W. Holocardius acephalus as a cause of dystocia: Report of a case. *Obstetrics and Gynecology*, 33(4):541-543, 1969.

A twin pregnancy in a primigravida terminated prematurely in the birth of a holocardiac acephalus monster which caused dystocia and a normal, live male infant who survived for 14 hours. The placenta was grossly abnormal in

terms of vascular function (in agreement with the theory that development of an acardiac twin is due to a vascular communication between the fetuses). This condition is probably due to an original failure of parts to form rather than to secondary atrophy. Fetal anomalies should be considered in the differential diagnosis of dystocia. (2 refs.) *M. G. Conant.*

District of Columbia General Hospital
Washington, D. C. 20003

226 LA TORRE, E.; & OCCHIPINTI, E. Cerebral angiography in hydranencephaly with report of three cases. *European Neurology*, 2(3):184-191, 1969.

Three cases of hydranencephaly were investigated by right retrograde brachial angiography because of the difficulty of differentiating hydrocephalus from hydranencephaly. Case one had an absent internal carotid artery system while case 2 had angiograms compatible with extreme hydrocephalus except for large avascular areas and a middle cerebral artery pushed against the bone. Case 3 had similar findings, but a thin middle cerebral artery without collateral branches was present. On the basis of these findings and those presented in the literature, the following findings seem to have definite diagnostic value in hydranencephaly: a normal pattern of vertebro-basilar and external carotid arteries; absent or miniature internal carotid system; and regional poor vascularization in the context of a picture resembling hydrocephalus except for the absence of upward deviation of the middle cerebral artery. (18 refs.) - *M. G. Conant.*

University of Rome
Rome, Italy

227 HOFFMAN, JULIUS; & LISS, LEOPOLD. Hydranencephaly: A case report with autopsy findings in a 7-year-old girl. *Acta Paediatrica Scandinavica*, 58(3):297-300, 1969.

A 7 1/2-year-old girl may be the oldest known patient with hydranencephaly. Although cerebral hemispheres were replaced by membranous sacs filled with cerebrospinal fluid, the brain stem (except absent medullary pyramids), spinal cord, and cerebellum appeared normal. The patient had seemed normal in the first few weeks of life, but later "cerebral palsy and MR" became apparent. If transillumination were included in the neurological examination of all infants, then this patient might have been properly diagnosed early in life. Hydranencephaly probably results from compression of the carotid arteries and failure of cerebral development early in fetal life, but the condition is compatible with survival beyond infancy. (1 ref.) - *E. L. Rowan.*

3000 Connecticut Avenue, N. W.
Washington, D. C. 20008

228 DAVIS, COURTLAND H., JR.; ALEXANDER, EBEN, JR.; & KELLY, DAVID L., JR. Treatment of craniosynostosis. *Journal of Neurosurgery*, 30(5):630-636, 1969.

Recognition, timing, and treatment are interdependent factors of equal importance in the care of the child with craniosynostosis. Craniosynostosis should be suspected in an infant with an abnormally-shaped head or premature closure of the fontanelles, and it should be confirmed by radiographic demonstration of closed sutures and evidence of increased intracranial pressure. Optimal response occurs if the child is operated on in the first few weeks of life and reoperated upon later if necessary. There is no response if the operation is delayed beyond one year. Treatment is directed at creating and maintaining artificial sutures to allow skull spreading and brain growth. If the pericranium is widely excised and the edges covered with polyethylene film, then healing is delayed. These children should be followed both clinically and radiologically and should be reoperated upon if there is repeat closure and raised intracranial pressure. (7 refs.) *E. L. Rowan.*

Wake Forest University
Winston-Salem, North Carolina 27103

229 COHEN, M. MICHAEL, JR.; & GORLIN, ROBERT J. The Prader-Willi syndrome. *American Journal of Diseases of Children*, 117(2):213-218, 1969.

Approximately 70 cases of the Prader-Willi syndrome have been documented, and 2 additional cases are reported. The syndrome is characterized by MR, muscular hypotonia, obesity, short stature, and hypogonadism. Insulin-resistant diabetes mellitus is also commonly noted. Both of the patients in this report were the only affected siblings in their families. Neither had dental caries, and both showed an increased number of whorls on dermatoglyphic examination. The etiology

of this syndrome is unknown, but it seems unlikely that it is an autosomal recessive trait as has been suggested. (21 refs.) *E. L. Rowan.*

University of Minnesota
Minneapolis, Minnesota 55455

230 EVANS, P. R. The Prader-Labhart-Willi syndrome. *Developmental Medicine and Child Neurology*, 11(3):380-382, 1969.

The Prader-Willi syndrome has clinical characteristics which include an emaciated infancy followed, at 1 to 4 years of age, by an enormous appetite and gross obesity, muscle weakness, short stature, small hands and feet, MR, gonadal anomalies, and an outgoing, friendly disposition. Older children with this syndrome often develop diabetes which can be controlled by diet. Although the etiology of this disorder needs further elucidation, the constellation of symptoms points strongly to the hypothalamus as being implicated. (3 refs.) - *S. Half.*

Guy's Hospital
London, S..E. 1, England

231 AFIFI, A. K. Histology and cytology of muscle in Prader-Willi syndrome. *Developmental Medicine and Child Neurology*, 11(3):363-364, 1969.

Subsarcolemmal mitochondrial aggregates, thickened sarcomeral filaments, increased osmiophilic density and widening of Z lines, and loss of myofilaments were observed by electron microscopy in muscle biopsy samples from patients with the Prader-Willi syndrome. None of these findings, however, was unique for this disease. (No refs.) - *L. S. Ho.*

American University of Beirut
Beirut, Lebanon

232 PONTE, C.; & NUYTS, J. P. Le syndrome de Prader-Labhardt-Willi (The Prader-Labhardt-Willi syndrome). *Medecine Infantile*, 75(6):417-424, 1968.

The Prader-Labhardt-Willi syndrome is easily recognizable and can be divided into 3 stages. Stage one is characterized by a generalized muscular hypotonia which appears in the neonatal period and continues until 1 to 2 years of age. The second stage is characterized by obesity, shortness of stature, MR, and morphological anomalies. Diagnosis becomes more certain when the obesity appears and is facilitated in the male by hypogonadism. The third phase (which begins inconsistently in adolescence) is marked by the appearance of sugar diabetes as well as retarded pubertal development. Treatment includes gavage feedings and the avoidance of infection in the first stage, dietetic measures in the second stage, and dietetic measures supplemented, if necessary, with tolbutamide or insulin in the third stage. (19 refs.) - *M. G. Conant.*

No address

233 ULIVELLI, A.; & SILENZI, M. Hypertelorism and Waardenburg's syndrome. *Helvetica Paediatrica Acta*, 24(1):123-236, 1969.

An association between true hypertelorism and Waardenburg's syndrome was found in 4 generations of a single family. Waardenburg's syndrome is characterized by lateral dystopia of the medial canthi and lacrimal points, a broad nasal root, hyperplasia of the medial portions of the eyebrows, heterochromia iridis, congenital unilateral deafness or deafmutism, and the presence of a white forelock. Seven members of the proband's family were affected by Waardenburg's syndrome, and 4 of the 7 also had true hypertelorism. In addition, 3 of the 4-Ss with both syndromes were MR. There appears to be no doubt that this association of both syndromes has been transmitted in an autosomal dominant manner. (13 refs.) - *L. S. Ho.*

University of Florence
Florence, Italy

234 FEINGOLD, MURRAY; O'CONNOR, JOHN F.; BERKMAN, MILTON; & DARLING, DONALD B. Kleeblattschadel syndrome. *American Journal of Diseases of Children*, 118(4):589-594, 1969.

Two additional cases of the Kleeblattschadel syndrome displayed the classic picture of trilobed or cloverleaf skull (premature synostosis of coronal and lambdoidal sutures), severe exophthalmos, downward displacement of ears, deformities of the long bones resembling achondroplasia, and SMR. A 14-year-old girl represented the oldest recorded patient. The trilobate skull was less apparent in her because of some lateral expansion of the parietal bones. The other case, a stillborn girl, displayed both the typical skull and typical achondroplastic long bones. (5 refs.) *E. L. Rowan.*

Boston Floating Hospital
Boston, Massachusetts 02111

235 GELLIS, SYDNEY S.; & FEINGOLD, MURRAY. Potter's syndrome. *American Journal of Diseases of Children*, 118(4):585-586, 1969.

Potter's syndrome is characterized by renal agenesis and striking facies (flattened face, floppy ears, micrognathia, and a skin crease on the chin). The genitourinary and pulmonary systems are often hypoplastic. Skeletal anomalies (clubfeet and arthrogryposis) are common. Oligohydramnios is common, and yellow nodular accumulations of vernix cells (amnion nodosum) are frequently seen on the placenta and membranes. Infants with this syndrome usually die soon after birth. (3 refs.) - *E. L. Rowan.*

Boston Floating Hospital
Boston, Massachusetts 02111

236 CHERINGTON, MICHAEL; OTT, JOHN E.; & ROBINSON, ARTHUR. Cornelia de Lange syndrome in an adult male. *Neurology*, 19(9): 879-884, 1969.

A 30-year-old male with mild MR (IQ 83) and a history of seizures was the oldest affected male and possibly the most intelligent individual with the Cornelia de Lange syndrome. This patient had the typical facies, short limbs, roentgen findings, and dermatoglyphics characteristic of the syndrome. In addition, there was a reciprocal translocation of the long arms of 2 chromosomes of the 13-15 group, and this pattern was also found in 7 of 9 phenotypically normal maternal relatives. A variety of chromosomal patterns have been observed in the de Lange syndrome, and this particular pattern may be only coincidental. (47 refs.) - *E. L. Rowan.*

University of Colorado Medical Center
Denver, Colorado 80220

237 DODSON, W. EDWIN; ALEXANDER, DUANE; ALAISH, MATTI; & DE LA CRUZ, FELIX. The DiGeorge syndrome. *Lancet*, 1(7594):574-575, 1969. (Letter)

The DiGeorge syndrome (anomalies in structures arising from the third and fourth pharyngeal pouches) is associated with delayed neurological development. A 4 1/2-year-old boy who presented for evaluation of delayed speech was also noted to have chronic otitis media and other evidence of decreased immune response secondary to thymic aplasia. In addition, he had deformed ears and facies, cleft palate, hypoparathyroidism, and an aortic arch anomaly. Although mildly retarded at age 3, the boy was normal by age 4 1/2. Delayed development may be a result of the repeated insults rather than the underlying disorder. (10 refs.) - *E. L. Rowan.*

National Institutes of Health
Bethesda, Maryland 20014

238 GORLIN, ROBERT J.; COHEN, M. MICHAEL, JR.; & WOLFSON, JUSTIN. Tricho-rhino-phalangeal syndrome. *American Journal of Diseases of Children*, 118(4):595-599, 1969.

An MR 6-year-old girl displayed the constellation of malformations known as the tricho-rhino-phalangeal syndrome. Her hair was sparse, fine, and slow-growing. The nose was broad and pear-shaped, and finger deformities were progressive as swelling of the middle phalangeal joints resulted in axial deviation of the fingers distal to this. Cartilagenous exostoses and cone-shaped epiphyses were prominent. An autosomal recessive mode of inheritance appears likely, although this has not been documented. (13 refs.) - *E. L. Rowan.*

University of Minnesota
Minneapolis, Minnesota 55455

239 MATSUDA, ICHIRO; TAKEDA, TAKEO; SUGAI, MOTONOBU; & MATSUURA, NOBUO. Oculocerebrorenal syndrome in a child with a normal urinary acidification and a defect in bicarbonate reabsorption. *American Journal of Diseases of Children*, 117(2):205-212, 1969.

The oculocerebrorenal (Lowe's) syndrome is characterized by MR, glaucoma, cataract, hypotonia, hyporeflexia, vitamin-D-resistant rickets, and metabolic acidosis. In most of the 50 reported cases, the mechanism for the metabolic acidosis had been a failure of urinary acidification in the distal renal tubule. Extensive laboratory investigation in a 6-year-old Japanese boy with the syndrome failed to substantiate a failure of urinary acidification as both short and long term ammonium chloride loading tests were normal. Bicarbonate loading tests demonstrated a defect in bicarbonate reabsorption in the proximal renal tubule as the cause of acidosis. Secondary hyperparathyroidism was also demonstrated. Metabolic acidosis in Lowe's syndrome may be caused by a proximal bicarbonate reabsorption defect, a distal acidification defect, or a combination of both. (23 refs.) *E. L. Rowan.*

Hokkaido University School of Medicine
Sapporo, Japan

240 CAYLER, GLEN G. Cardiofacial syndrome: Congenital heart disease and facial weakness, a hitherto unrecognized association. *Archives of Disease in Childhood*, 44(233):69-75, 1969.

A hitherto unrecognized association of congenital heart disorder and unilateral partial facial paresis was found in 14 infants born between August 1965 and May 1967 within a 100-mile radius of Sacramento. Chromosomal studies in 3 cases showed breaks and deletions of the terminal portion of the long arms; however, no constancy of group or number was found. Viral infection was negative in the 3 cases. Twelve of the 14 infants showed ventricular septal defects or anomalies including a ventricular septal defect; one had mild valvar pulmonary stenosis, and the other had aortic coarctation. Since, embryonically, the hyoid arch is proximal to the cardiac primordium during the fifth week of pregnancy, this syndrome may be caused by a subclinical maternal viral infection. (30 refs.) *L. S. Ho.*

Sutter Community Hospitals
Sacramento, California

241 FELDT, ROBERT H.; EWERT, JOSEPHINE C.; STICKLER, GUNNAR B.; & WEIDMAN, WILLIAM H. Children with congenital heart disease: Motor development and intelligence. *American Journal of Diseases of Children*, 117(3):281-287, 1969.

From a group of 411 children, 44 with acyanotic heart defects were compared with 34 children with cyanotic congenital heart disease, and the results demonstrated that MR was more prevalent in cyanotic than in acyanotic children. A delay in motor development with normal IQ was found in patients with severe cardiac disabilities; therefore, ages of sitting and walking are not reliable predictors of intelligence. The severity of cyanosis, the size of shunt, the presence of pulmonary vascular disease, previous palliative surgery or problems of cardiac failure did not appear to be significantly related to mental development. Fourteen percent of 226 children examined for head circumference were more than 2 standard deviations below the mean, and all but one were MR. An association was noted among small head circumference, MR, and growth failure in patients with and without congenital heart disease. (9 refs.) *B. Bradley.*

Mayo Clinic
Rochester, Minnesota 55901

242 SUGARMAN, GERALD I.; & REED, WILLIAM B. Two unusual neurocutaneous disorders with facial cutaneous signs. *Archives of Neurology*, 21(3):242-247, 1969.

The association of facial cutaneous lesions with cerebral or neurological disease is reported in 2 patients with cutaneous signs and severe MR and epilepsy. A 12-year-old Chinese girl has a linear verrucose growth on the right side of her face and head which biopsy reveals to be a mixture of pigmented nevi, blue nevi, and sebaceous adenomas. In addition, there is a generalized aminoaciduria, vitamin-D-resistant rickets, a small calvarium, hydrocephalus, and profound motor and mental retardation. A 6 1/2-year-old Negro girl with depigmentation of the left midportion of the face also has chemical diabetes and profound motor and mental retardation. Both patients probably have embryonal malformations of a non-hereditary nature. (12 refs.) - *E. L. Rowan.*

3325 Division Street
Los Angeles, California 90065

243 MENGEL, MARVIN C.; *KONIGSMARK, BRUCE W.; BERLIN, CHARLES I.; & McKUSICK, VICTOR A. Conductive hearing loss and malformed low-set ears, as a possible recessive syndrome. *Journal of Medical Genetics*, 6(1):14-21, 1969.

A health survey of Mennonites in Lancaster County (Pennsylvania) found 6 children (4 boys and 2 girls) of 2 interrelated families who had malformed low-set ears and conductive hearing loss; 3 of 4 children tested were MR, and all 4 males had immature genitalia. Three cousins of the children of one family were also MR, and at least one of these had histidinemia. The families were both descended from a man who died in Switzerland in 1720. This syndrome is transmitted as autosomal recessive. Tympanoplasty in one child showed malformed middle-ear bones, and insertion of a prosthesis improved this child's hearing. (14 refs.) - *L. S. Ho.*

*The Johns Hopkins Hospital
Baltimore, Maryland 21205

244 FONKALSRUD, ERIC W.; DELORIMIER, ALFRED A.; & HAYS, DANIEL M. Congenital atresia and stenosis of the duodenum: A review compiled from the members of the Surgical Section of the American Academy of Pediatrics. *Pediatrics*, 43(1):79-83, 1969.

Congenital duodenal obstruction due to atresia and/or stenosis was surveyed in 503 patients. Fifty-four percent of these infants were premature, 45% were products of pregnancy complicated by maternal hydramnios, and 48% had associated malformations, primarily malrotation of the colon, congenital heart disease, tracheoesophageal fistula, and renal malformations. Thirty percent had Down's syndrome. Most (487) underwent corrective surgery, primarily end-to-side or side-to-side duodenoduodenostomy or duodenojejunostomy, with general anesthesia and tube gastrostomy. Sixty-four percent survived. Most complications and deaths were due to other, generally unrecognized, malformations. Although the diagnosis of congenital duodenal obstruction may be made relatively easily, it must be kept in mind that this is often only one of multiple organ system anomalies. (No refs.) *E. L. Rowan.*

University of California
Los Angeles, California 90024

245 ESTERLY, NANCY B.; CANTOLINO, SALVATORE J.; ALTER, BLANCHE P.; & BRUSILOW, SAUL W. Pupillotonia, hyporeflexia, and segmental hypohidrosis: Autonomic dysfunction in a child. *Journal of Pediatrics*, 73(6):852-859, 1968.

Pupillotonia hyporeflexia with segmental hypohidrosis was observed in a child (CA 3 yrs) who had additional features of familial dysautonomia and an abnormal elevation of sweat chloride concentration. The patient was first seen in May 1966 at age 18 months because of intermittent fever, lethargy, vomiting, and diarrhea. Obstetrical history was normal, and the child's birth-weight, health during infancy, and development were normal. A physical examination demonstrated depressed deep tendon reflexes and round, regular, symmetrical pupils which were fixed at 5 mm in diameter. In July 1966, she was again hospitalized for recurrent fever, and in September 1966, it was noted that she transpired only from the right flank. Because she defervesced rather rapidly when placed in an environment of 20°, it was suggested that her fevers were due to reduced sweat gland activity; however, serial sections of skin biopsies noted histologically normal eccrine glands. This is the first reported case of an association of pupillotonia hyporeflexia and segmental hypohidrosis--both are defects of the autonomic nervous system. (29 refs.) *F. J. McNulty.*

La Rabido-University of Chicago Institute
Chicago, Illinois 60649

246 AINSWORTH, PATRICIA; & *DAVIES, PAMELA A. The single umbilical artery: A five-year survey. *Developmental Medicine and Child Neurology*, 11(3):297-302, 1969.

A single umbilical artery was found in 113 (0.94%) of 12,078 newborn infants surveyed between 1961 and 1965 in Oxford (England), and the mortality rate of this group (310/1,000) was much higher than those with normal cord vessels (41/1,000). The incidence of additional malformations was 33.6% in infants with a single umbilical artery compared to 2.6% in infants with 2 umbilical arteries. Although the sex distribution of single umbilical artery was normal, more male infants had associated congenital anomalies. The single umbilical artery was the most common anomaly found among the infants examined, and it occurred 3 times as often as the next most frequent malformation, hypospadias. (15 refs.) - *L. S. Ho.*

*Hammersmith Hospital
London, W.12, England

247 SUMMITT, ROBERT L.; & FAVARA, BLAISE E. Leprechaunism (Donohue's syndrome): A case report. *Journal of Pediatrics*, 74(4):601-610, 1969.

A female infant with multiple congenital malformations and malnutrition (leading to death at age 5 months) was diagnosed as having leprechaunism (Donohue's syndrome). The main clinical features included elfin facies with large, low-set ears, deep-set eyes, retuse nose, thick lips and micrognathia, sparse scalp hair, facial hirsutism, inguinal hernias, prominence of the clitoris and labia minora, partial fusion of labia minora, absence of the corpus callosum, hydromyelia, pyloric stenosis, and hypoplastic dermal patterns. In addition, there was eventration of the diaphragm and inconspicuous lymphatic tissue. The diagnosis of Donohue's syndrome is based only on clinical appearance since no characteristic laboratory or histologic features are known. The syndrome may have a genetic basis, but no chromosomal, endocrine,

nor metabolic abnormalities common to all the cases reported have been found. (17 refs.) *M. G. Conant.*

University of Tennessee College of Medicine
Memphis, Tennessee 38103

248 BLUMENFELD, S. Some reflections on the problem of infantile encephalopathy: Notion, framework, classification. *Annals Medico-Psychologiques*, 2(5):715-724, 1967.

The importance of encephalopathy in infant neuropsychiatry is discussed with emphasis on the theoretical and practical problems, especially the economic and social factors. Infantile encephalopathy is defined as "a series of brain disorders in the young child caused a lesion capable of disturbing his normal development." A simplified classification which accounts for the time of cerebral accident (antenatal, neonatal, postnatal) is presented. Although chemotherapy has saved many lives, many Ss continue to live with serious mental or motor disturbances. (14 refs.) - *A. Huffer.*

249 NISWANDER, J. D.; & ADAMS, M. S. Major malformations in relatives of oral cleft patients. *Acta Genetica et Statistica Medica*, 18(-):229-240, 1968.

The occurrence of major malformations, other than cleft defects, was studied in relatives of 93 Ss with cleft lip and/or cleft palate; of the 2/3 who cooperated, a greater frequency of other malformations was found among the relatives of the propositi than among those of the controls. (14 refs.) *A. Huffer.*

No address

250 NELSON, M. M.; & FORFAR, J. O. Congenital abnormalities at birth: Their association in the same patient. *Developmental Medicine and Child Neurology*, 11(1):3-16, 1969.

In a survey of 8,684 births in Edinburgh (Scotland), 470 newborn infants were found to have congenital abnormalities (an incidence of 5.4%) of a major (187 Ss) or a minor (283 Ss) nature. Major abnormalities were defined as those severe enough to cause death or significant handicap while minor abnormalities were those considered unlikely to seriously affect normal life style or life expectancy. Forty-four percent of the infants with major abnormalities had more than one major or minor associated malformation; 26% of those infants with minor anomalies had associated major or minor abnormalities. In Britain, the most commonly found congenital abnormalities were those which affected the central nervous system. This is in contrast to North America where cardiovascular anomalies are most commonly found. A prognostic index can be used with minor and less serious major malformations to determine the risk of the presence of more serious but hidden lesions. (13 refs.) - *M. Drosman.*

University of Edinburgh
Edinburgh 9, Scotland

251 NOLTE, RENALTE; *SCHULTE, F. J.; MICHAELIS, R.; WEISSE, ULRIKE; & GRUSON, R. Bioelectric brain maturation in small-for-dates infants. *Developmental Medicine and Child Neurology*, 11(1):83-93, 1969.

Conceptual age rather than birth-weight was the most significant factor in the bioelectric maturation of the brain as measured by EEGs in normal weight, full-term infants (7 Ss), small-for-date, full-term infants (10 Ss), and pre-term infants (7 Ss). Power distribution was compared in active sleep (rapid-eye-movement) and quiet sleep. Maximum power was always in the slow wave range, but there was greater variability (discontinuous patterns) with higher voltage in the low frequency spectrum of younger infants. Power in active sleep was greater than that in quiet sleep at 30 weeks gestational age (especially in the fronto-central region) while the reverse ratio held at 40 weeks. There was close similarity in active quiet power ratios of infants with equal conceptual age, regardless of birth-weight. Brain maturation is then independent of body weight; however, the role played by superimposed brain anomalies or brain trauma is not known. (26 refs.) *E. L. Rowan.*

*Kinderklinik der Universitat
Gottingen, Germany

252 NISWANDER, KENNETH R.; SINGER, JUDITH; WESTPHAL, MILTON, JR.; & WEISS, WILLIAM. Weight gain during pregnancy and prepregnancy weight: Association with birth weight of term gestation. *Obstetrics and Gynecology*, 33(4):482-491, 1969.

The prepregnancy weight and weight gain during normal pregnancy of 8,295 white women and

of 6,909 Negro women were plotted against the mean birth-weights of their babies. There were positive linear associations between both prepregnancy weight and weight gain and the infant's birth-weight which changed with the prepregnancy weight of the mother. As the weight of the mother increased, the possible effect of her weight gain on the infant's birth-weight decreased. The prematurity rate dropped with increasing prepregnancy weight in both Negroes and whites. Although the mean weight gains of the 2 race groups are very close (22.8 lbs for whites and 22.5 lbs for Negroes), an excess of Negro mothers have small and large weight gains. The existence of a causal relationship between these variables was not demonstrated. (3 refs.) - *M. G. Conant.*

219 Bryant Street
Buffalo, New York 14222

253 BLUM, D.; DODION, J.; *LOEB, H.; WILKIN, P.; & HUBINONT, P. O. Studies on hypoglycaemia in small-for-dates newborns. *Archives of Disease in Childhood*, 44(235):304-310, 1969.

Blood sugar determinations were carried out on 34 "small-for-dates" infants (apparent intrauterine malnutrition) and 31 term controls and, although results were not statistically significant, there was a higher incidence of hypoglycemia in the low birth-weight group. All controls had fasting glucose levels above 30 mg/100 ml; whereas, 10 of the low birth-weight group had values below 30 mg/100 ml, and 5 of these (2 symptomatic) had glucose levels below 20 mg/100 ml. Glucagon produced a satisfactory rise in glucose in all Ss, so depletion of hepatic glycogen was not the mechanism of the hypoglycemia. The physiological basis for the phenomenon is unknown. (38 refs.) - *E. L. Rowan.*

*Hopital Universitaire Saint-Pierre,
Brussels, Belgium

254 MISENHIMER, H. ROBERT; & KALTREIDER, D. FRANK. Preterm delivery of patients with decreased glucose tolerance. *Obstetrics and Gynecology*, 33(5):642-646, 1969.

No difference in perinatal mortality was found between infants preterm-delivered and those spontaneously delivered of mothers who had decreased glucose tolerance in pregnancy; however, the incidences of respiratory distress syndrome and hyperbilirubinemia were higher (6.9% and 17.2% respectively) in the preterm-delivered infants. The incidence of infection was significantly higher (8.6% compared to 0%) for those infants born of mothers allowed to go to term. Nineteen of 207 patients with abnormal glucose tolerance had progressive deterioration of their carbohydrate metabolism during pregnancy to the point of overt diabetes. The frequency of congenital anomalies was higher in patients with glucose intolerance than would be normally expected. Although there is no evidence that preterm delivery is beneficial in decreasing infant mortality in patients who have only abnormal glucose tolerance tests, such testing remains important because many of these patients progress to clinical diabetes with its attendant risks. (4 refs.) *M. Drosman.*

Baltimore City Hospitals
Baltimore, Maryland 21224

255 HEY, E. N.; & KATZ, G. Temporary loss of a metabolic response to cold stress in infants of low birthweight. *Archives of Disease in Childhood*, 44(235):323-330, 1969.

Three small-for-dates infants (birth-weight between 1 and 2 kgs) who had had normal thermoregulatory responses at birth were found between 5 and 10 days of age to have temporarily lost their ability to increase heat production in a cool environment. They all appeared well, and other physiological mechanisms in temperature control (restlessness, vasomotor constriction, and sweating) were undisturbed. Two of these infants showed no sequelae of this temporary metabolic derangement, but one subsequently developed hydrocephalus (probably following intracranial hemorrhage) after a return of temperature control. It is probable that a depletion of the calorigenic brown adipose tissue in these small infants made it impossible for them to respond to the fluctuating environment. (37 refs.) - *E. L. Rowan.*

London Hospital Medical College
London E. 1, England

Gross brain disease (postnatal)

256 VAN KEMPEN, G. M. J. Ervaringen met de chemische diagnostiek van metachromatische leukodystrofie (sulfatide-lipidose) (Experiences with chemical diagnosis of metachromatic leukodystrophy [sulphatide lipoidosis]). *Nederlands Tijdschrift voor Geneeskunde*, 113(38):1634-1636, 1969.

The clinical diagnosis of sulfatide lipoidosis can be confirmed by the presence of metachromatic material or arylsulfatase A in the urine. Six of 80 children with neurological disorders were determined to have sulfatide lipoidosis on the basis of positive urinary findings. Four of these cases were confirmed by biopsy. Although the presence of metachromatic material in the urine is considered a reliable index of metachromatic leukodystrophy, it can not be used to detect heterozygote carriers. (12 refs.) - *S. L. Hamersley.*

Psychiatrisch Ziekenhuis
Endegeest c. a.
Oegstgeest, The Netherlands

257 KLIEMANN, F. A. D.; HARDEN, ANN; & PAMPIGLIONE, G. Some E.E.G. observations in patients with Krabbe's disease. *Developmental Medicine and Child Neurology*, 11(4): 475-484, 1969.

Seven children with verified Krabbe's disease were studied. EEG changes were seen even at an early phase of the disease, with a progressive deterioration in the course of the illness. During the episodes of screaming and hyperextension of the head and trunk, there were no EEG alterations. The responses evoked by photic stimulation were present in the first stages of the disease, but were not recognizable in the advanced phases. The EEG findings are discussed in relation to the differential diagnostic problems of children with obscure neurological disorders in this age group. (16 refs.) - *Journal summary.*

Hospital for Sick Children
London, W.C.1, England

258 DUNN, H. G.; LAKE, B. D.; DOLMAN, CLARISSE L.; & WILSON, J. The neuropathy of Krabbe's infantile cerebral sclerosis (globoid cell leukodystrophy). *Brain*, 92(II):329-344, 1969.

Seven histologically proven cases of globoid cell leukodystrophy (Krabbe's infantile cerebral sclerosis) were examined for the presence of peripheral neuropathy. Tendon-jerks were depressed or absent in most of the patients, and a gradual transition from rigidity to hypotonia was observed clinically in 2 cases. In each of 3 children tested, the conduction velocity in motor fibers of large limb nerves was markedly reduced, and the conduction in sensory fibers was impaired in the 2 patients tested. Myelin stains and acid phosphatase preparations revealed demyelination in sural nerve biopsies in 2 patients and in cutaneous nerve biopsies in 2 others. Autopsy evidence confirmed the presence of segmental demyelination in peripheral nerves in all 7 cases. Peripheral neuropathy may be of diagnostic importance, and this disease involves a progressive demyelinating neuropathy. (44 refs.) - *M. G. Conant.*

University of British Columbia
Vancouver, Canada

259 HENRY, P.; & MAURIN, PH. Nouvelles approches biologiques et biochimiques de la sclerose en plaques (New biological and biochemical approaches to multiple sclerosis). *France Medicale*, 32(8):353-358, 1969.

Most research on the cause of multiple sclerosis has centered on a viral etiology, a neuro-allergic hypothesis, or the possibility of a lipid metabolic disorder. If the disease has a viral etiology, the virus has a long latency period (similar to the virus causing kuru). The neuro-allergic hypothesis is based on clinical data (the similarity between the immune reaction of the brain in multiple sclerosis and in other types of encephalitis), experimental data (the production of demyelinizing encephalitis similar to multiple sclerosis in monkeys by administration of rabbit brain extracts), and other

biological data (production of immunoglobulins upon infection with the disease). The possibility of a disturbance of lipid metabolism (probably phospholipid metabolism) in the genesis of multiple sclerosis has gained more favor lately. Fatty acids in the diet appear to play an important role in the etiology of multiple sclerosis (the incidence of the disease is 3 times as great in regions of high unsaturated fatty acid intake as it is in regions of low unsaturated fatty acid intake). (30 refs.) - *M. G. Conant.*

No address

260 HEWER, RICHARD L.; & ROBINSON, NORMAN. Diabetes mellitus in Friedreich's ataxia. *Journal of Neurology, Neurosurgery, and Psychiatry*, 31(3):226-231, 1968.

A survey of 113 cases of Friedreich's ataxia revealed 9 (8%) to have clinical diabetes mellitus. Twelve additional cases had diabetic glucose tolerance curves; however, most of these were immobile as a result of their neurological handicap, and immobility is a potent cause of apparent glucose intolerance. In all cases, diabetes was of adult onset after Friedreich's ataxia had been manifest for many years. The coincidence of these 2 disorders has frequently been noted, and this 8% incidence of diabetes is higher than the generally accepted incidence of 2% in the general population. The genetic relationship between these dissimilar diseases is unknown. (20 refs.) - *E. L. Rowan.*

The National Hospital
London, England

261 ARLEDGE, ROBERT L. Ataxia-telangiectasia. *Physical Therapy*, 48(10):1089-1093, 1968.

Ataxia-telangiectasia is a progressive degenerative disease which is commonly initially diagnosed as cerebral palsy and may, therefore, be seen by a physical therapist. Cerebellar ataxia is often the first manifestation, and cutaneous telangiectasia and progressive MR appear later. No curative treatment is available, and physical therapy is indicated to prevent contractures, maintain ambulation if possible, and assist in the activities of daily living. (9 refs.) *E. L. Rowan.*

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Elmendorf AFB, Alaska 98742

262 REED, WILLIAM B.; LANDING, BENJAMIN; SUGARMAN, GERALD; CLEAVER, JAMES E.; & MELNYK, JOHN. Xeroderma pigmentosum: Clinical and laboratory investigation of its basic defect. *Journal of the American Medical Association*, 207(11):2073-2079, 1969.

Xeroderma pigmentosum is a relatively rare hereditary disorder with features of clinical similarity to Bloom's disease, ataxia-telangiectasia, Cockayne's syndrome, and the Chediak-Steinbrinck-Higashi syndrome; typical clinical aspects of xeroderma pigmentosum include sensitivity to sunlight, multiple cutaneous malignancies (of both ectodermal and mesodermal origins), and severe eye involvement. In addition, in the complete syndrome, neurological disorders are also involved and may include MR, microcephaly, ataxia, choreoathetosis, and deafness. In 4 of the 5 patients studied in this report, neurological symptoms accompanied the cutaneous disorders, and one of these Ss developed lymphatic leukemia. The basic defect in this disorder appears to be an inability to repair deoxyribonucleic acid which is damaged by radiation. This may be related to the carcinogenesis of the skin of these Ss upon exposure to the sun. Cerebral and olivopontocerebral atrophy was found at autopsy of one patient. This disorder is probably transmitted as an autosomal recessive phenotype with variable penetrance. (20 refs.) - *M. Drossman.*

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263 LAMPERT, PETER W.; EARLE, KENNETH M.; GIBBS, CLARENCE J., JR.; & GAJDUSEK, D. CARLETON. Experimental kuru encephalopathy in chimpanzees and spider monkeys: Electron microscopic studies. *Journal of Neuropathology & Experimental Neurology*, 28(3):353-370, 1969.

Four chimpanzees and 2 spider monkeys were injected with brain suspensions from chimpanzees with kuru, and 3 chimpanzees were injected with brain suspensions from humans with kuru. One to two years later, the animals developed an encephalopathy in which the cerebral cortex showed vacuolar neuronal degeneration, astrocytic proliferation, and a lack of inflammatory cells (as shown by electron microscopy). Vacuoles were seen within the neuronal perikarya, axons, and dendrites, and focal clearings and herniations were found in the cytoplasm of neurons and astrocytes. The swelling and proliferation of astrocytes was interpreted as reactive changes secondary to neuronal damage. Argentophilic, intracytoplasmic spheroids which consisted of

a conglomerate of randomly oriented neurotubules were found in some swollen nerve cells. These findings resemble those in other degenerative encephalopathies--scrapie, Creutzfeldt-Jakob disease, and Pick's disease. (31 refs.) - *M. G. Conant.*

Armed Forces Institute of Pathology
Washington, D. C. 20305

Psycho-environmental

264 JENSEN, ARTHUR R. A theory of primary and secondary familial mental retardation. In: Ellis, Norman R., ed. *International Review of Research in Mental Retardation: Volume 4.* New York, New York, Academic Press, 1970, p. 33-105.

A diagnostic analysis of the cultural familial category of MR is based on a theory of primary and secondary retardation involving a "dual process hypothesis of cognitive functioning". The incidence of mild MR is strongly associated with socio-economic status (SES); however, the abstractness of test items may be more influential in determining test scores of different social classes than the cultural content. The theory of primary and secondary familial MR involves 2 types of abilities (associative and cognitive). Level II (cognitive) ability differs in the socio-economic classes while Level I (associative) ability does not seem to be related to class status. Level II abilities are involved heavily in occupational and educational success. Separate genetic mechanisms for Level I and Level II abilities are postulated. Primary retardation refers to a deficiency in Level I while secondary retardation refers to a deficiency in Level II. This theory regards individual differences in Level I and Level II abilities as "uncorrelated genotypically but correlated phenotypically". Little of the intellectual retardation in low SES groups is of the primary type, and after they leave school, people in this group are often considered to be non-retarded. Schools often fail to teach children with Grade Level I skills and poor Level II ability, and Level II abilities are often rewarded more than Level I performance. Research should be directed toward methodology for acquiring Level II processes by those children with normal Level I abilities. Emphasis should also be given toward making the most use possible of Level I abilities in the educational process. (112 refs.) - *B. Bradley.*

265 MICHAUX, L. Les psychoses des oligophrenes: Introduction (Oligophrenic psychoses: Introduction). In: *Concilium Paedopsychiatricum, Proceedings of the 3rd European Congress of Pedopsychiatry*, held Wiesbaden, West Germany, May 4-9, 1967. Basel, Switzerland, Karger AG, 1968, p. 346-351.

The classification of oligophrenic psychosis and the delineation of the clinical forms are made difficult by the early appearance of certain manifestations, the possible association of pre- and post-natal processes, and the gradual evolution of congenital processes after birth. The 3 clinical forms include delirious psychoses, demential psychoses, and dissociative psychoses. The preexistence of significant MR is the most important factor to be taken into account before therapy is undertaken. (No refs.) *M. G. Conant.*

266 DUCHE, D. J. Caracteres cliniques des psychoses chez les oligophrenes et des oligophrenies chez les psychotiques au cours de l'enfance (Clinical character of psychoses in oligophrenics and oligophrenias in psychotics during childhood). *Concilium Paedopsychiatricum, Proceedings of the 3rd European Congress of Pedopsychiatry*, held Wiesbaden, West Germany, May 4-9, 1967. Basel, Switzerland, Karger AG, 1968, p. 352-362.

The common denominator of all childhood psychoses is a massive disturbance of relations with the surroundings, and whether or not there is underlying oligophrenia is of little importance, for even children of above average intelligence behave as defectives when afflicted with psychosis. The symptoms of childhood psychosis include language difficulties, difficulty in conceiving a body image, autism, bizarre behavior, agitation, anxiety, fear of darkness and animals,

aggressiveness, stereotyping, hallucinations, and sleep disturbances. The psychotic process favors the dissociative process, and as the children lose contact with the outside world, they fail to acquire more knowledge and end up as authentic MRs. (No refs.) *M. G. Conant.*

267 MOOR, L. Criteres psychologiques des psychoses chez les oligophrenes (Psychological criteria of psychoses in oligophrenics). *Concilium Paedopsychiatricum, Proceedings of the 3rd European Congress of Pedopsychiatry*, held Wiesbaden, West Germany, May 4-9, 1967. Basel, Switzerland, Karger AG, 1968, p. 363-368.

A review of the literature on the establishment of psychological criteria of psychoses in oligophrenic children by means of psychometric testing has shown that no such criteria exist at the first examination. However, dispersion of results on all tests, a significant difference between results on the verbal and nonverbal Wechsler scale, and good results on informational subtests and KOHS cubes allow the possibility of simple MR to be eliminated. Nevertheless, only bizarre behavior associated with stereotyping or echolalia can be used to diagnose definitely psychosis, and Rorschach tests are helpful. Longitudinal studies show that results of successive tests on psychotic children show great variability, in contrast to results on MR children. (No refs.) - *M. G. Conant.*

268 WIDLOCHER, D. Les imspirations psychanalytiques dans les themes obsessionnels et delirants des psychoses chez les oligophrenes (Psychoanalytic inspiration in obsessional and delirious themes of psychotic oligophrenics). *Concilium Paedopsychiatricum, Proceedings of the 3rd European Congress of Pedopsychiatry*, held Wiesbaden, West Germany, May 4-9, 1967. Basel, Switzerland, Karger AG, 1968, p. 369-379.

Psychoanalytical studies have illuminated the relations between psychosis and normal development in children and between psychoses, dysharmonic states, and MR states, but they have not discerned the underlying cause of childhood psychoses. Neither the study of the child's relation to objects nor his early relationships offers the key to the development of psychosis. But the psychoanalysts have shown the rightful place of childhood psychosis in the psychopathology of the young child and have situated its development in his early relationships. The common finding of obsessions and delirium in psychotics is discussed. (13 refs.) - *M. G. Conant.*

269 FLAVIGNY, H.; & CARO, G. Voies d'entree medico-legales des oligophrenies dans la psychose (Medico-legal acts as psychotic symptoms in oligophrenics). *Concilium Paedopsychiatricum, Proceedings of the 3rd European Congress of Pedopsychiatry*, held Wiesbaden, West Germany, May 4-9, 1967. Basel, Switzerland, Karger AG, 1968, p. 380-392.

Four cases in which medico-legal acts signified the start of psychosis in an oligophrenic S are reported; in 2 cases the act was brutal and criminal (suicide and murder), and in the other 2, it was disquieting. The relation between oligophrenia and psychosis is complex. Some traits which favor development of psychosis include an inflexion in the primary psychomotor development curve, difficulties or regression in eating, language difficulties, behavior problems, discordance between results of psychometric tests and the clinical impression, and the character of the medico-legal act. The latter should alert the doctor to search for symptoms of psychosis and to make a rapid decision as to therapy. (8 refs.) - *M. G. Conant.*

270 LANG, J. L. Arrieration mentale et psychose: A propos d'une observation de dysharmonie d'evolution (Mental retardation and psychosis: Dysharmony of development). *Concilium Paedopsychiatricum, Proceedings of the 3rd European Congress of Pedopsychiatry*, held Wiesbaden, West Germany, May 4-9, 1967. Basel, Switzerland, Karger AG, 1968, p. 426-433.

A case of dysharmonic development (in which different aspects of psychobiological development have proceeded at different rates) in a 7-year-old boy is described. The patient showed overall psychomotor retardation and difficulty with temporospatial and perceptive-motor relations, but his verbal expression, initially retarded, was good. The boy showed no sign of a neurological lesion and had a Terman-Merrill IQ of 55. Results of projective tests were impossible to interpret, and results of successive IQ tests showed wide dispersion. The MR syndrome characterized by dysharmony and the relational syndrome characterized by his atypical personality are specific features of this syndrome of dysharmonic development. (No refs.) *M. G. Conant.*

271 HULICKA, IRENE M. The socially unmotivated. In: Roucek, Joseph S., ed. *The Slow Learner*. New York, New York, Philosophical Library, 1969, p. 45-68.

Consideration of the "unmotivated" child from the point of view of Maslow's theory (hierarchy of needs) suggests that in some cases the motives which the teacher tries to use may not have emerged or may not be operative at the time of instruction. Some barriers to efficient classroom performance cannot be removed by the teacher and may require the action of community agencies. However, the need for safety can be manipulated and reduced by school programs. Teachers can reassess their approaches to and attitudes toward "unmotivated" children by reducing the dominance of physiological and safety needs, establishing goals aimed at satisfying love and esteem needs, identifying the child's most urgent needs, attempting to provide partial satisfaction for a child's esteem needs, emphasizing areas of competency, and using the principles of reinforcement. Behavior shaping techniques and techniques designed to elicit desired responses by subdividing acceptable behavior into its component units can be used effectively to increase motivation in the classroom, (16-item bibliog.) *J. K. Wyatt.*

272 DAVIS, SHIRLEE D.; & DEMOS, GEORGE D. Social and economic background as an obstacle to learning. In: Roucek, Joseph S., ed. *The Slow Learner*. New York, New York, Philosophical Library, 1969, p. 89-110.

Attention to the problems of the disadvantaged has emerged from the civil rights movement and from the residential and educational rearrangement of blacks and whites in large cities. The Elementary and Secondary Education Act of 1965 and Title I are attempts to combat the effects of poverty through education. The most important behavioral characteristic of the disadvantaged for school personnel is their low educability. The characteristics of homes in low socioeconomic areas, the adult models in the environment, the social problems of urban areas, negative influences of factors associated with poverty, and deprivation of factors relevant to early child development appear to have a crucial effect on educability. Learning in the home, community, and school is clearly related to socioeconomic status, and children of minority group status and in the lower socioeconomic classes have typically evidenced lower levels of learning. Recent research has emphasized a detailed description of environments to identify specific environmental factors that affect learning. Among the criticisms of preschool compensatory education programs are that they do not begin until the age of 3 years and require a specially designed rather than a traditional orientation to remedy cognitive deficits. Counseling for the disadvantaged should emphasize a holistic approach and should be designed to increase the awareness of the disadvantaged and advantaged. (44-item bibliog.) - *J. K. Wyatt.*

273 BELOK, MICHAEL V. The racially deprived child. In: Roucek, Joseph S., ed. *The Slow Learner*. New York, New York, Philosophical Library, 1969, p. 111-140.

Approximately 1/3 of the youth of the United States may be classified as culturally deprived, and the majority of these are members of specific racial groups, of socially disadvantaged groups, and/or from lower socioeconomic levels. Among the disadvantages which contribute to the poor school achievement evidenced by the culturally deprived are poverty, language and perceptual difficulties, and poor preparation for school. When intelligence is viewed as a developmental concept rather than as a constant, the effects of early cultural deprivation are serious. Poor school achievement appears to be related to low achievement orientation, subtle discrimination, damaged self-image, lack of an adequate masculine model, broken homes, and different time orientations. Although the term racially disadvantaged is an error, the term is used because visibility is an important and decisive factor in the effects of deprivation. The specific problems of the Puerto Rican, the American Indian, the Negro, and the Mexican-American are discussed. (28-item bibliog.) - *J. K. Wyatt.*

274 HURST, CHARLES G., JR. Special problems of black children and youth. In: Roucek, Joseph S., ed. *The Slow Learner*. New York, New York, Philosophical Library, 1969, p. 141-166.

The education of black youth constitutes a special problem which has grown out of their blackness and their position of poverty in a nation of relative affluence. Increasing numbers of children from lower socioeconomic and minority group settings, who have substantial educational handicaps in terms of

readiness, are entering school each year. Extensive data indicate that although low-income black children have seriously underdeveloped learning and verbal skills, they have a rich repository of language that is usually untapped by presently used evaluational and instructional methods. Since middle- and low-class children have different learning styles and make differing responses to verbal stimuli, the techniques successfully used with middle-class children are probably not effective with children from the lower socioeconomic groups. Generating spontaneous speech from underprivileged children is a complex task, and none of the methods successfully used with white, middle-class children have been profitable with a black, underprivileged population. Evaluations of verbal skills and language development in underprivileged black children must investigate the relations among cognitive, affective, and verbal variables as well as the effects of sensory deficits. Problems in the education of the black, underprivileged child include an inadequate knowledge of non-standard English by teachers and textbook authors, the use of different and unfamiliar language systems by teachers and students, and unclear teaching goals. A highly verbal scholastic classroom environment based on teacher understanding of non-standard dialects will increase the educational outlook for black, underprivileged children. (96-item bibliog.) *J. K. Wyatt.*

275 WINTHROP, HENRY. The ungifted: Their limitations and horizons. In: Roucek, Joseph S., ed. *The Slow Learner*. New York, New York, Philosophical Library, 1969, p. 327-356.

Intellectual and psychological factors which contribute to the poor social motivation of the ungifted include alienation, poverty of consciousness in terms of intellectual inadequacies, communication weaknesses, a sense of the absurd which springs from intellectual inadequacies, and a quality of alienation which differs from that of normal or bright individuals. Although the educational handicaps of the ungifted may be related to intellectual deficit and cultural impoverishment, their primary cause is social and related to the incongruity between the concerns of the classroom and the concerns of the outside world which they perceive as absurd. The chief factors involved in the deprivation of job opportunities and the consequent apathy of the ungifted are impoverished intellectual status, educational limitations, and restriction of the intellectually marginal to low-status positions, the increasing elimination of low-grade skills by automation, and the barriers to employment in glamorous areas presented by their personalities and deficiencies. Some of the ungifted engage in leisure time activities which lead to juvenile delinquency, and others use their leisure time to pursue interests in cars, sports, or music, engage in sexual activities, wear zany clothing, and/or use psychedelic drugs. The world of the ungifted conflicts with that of the older generation, and the adjustment of the intellectually marginal to American society is extremely difficult. (37-item bibliog.) - *J. K. Wyatt.*

276 POZNANSKI, ELVA. Psychiatric difficulties in siblings of handicapped children. *Clinical Pediatrics*, 8(4):232-234, 1969.

The presence of a child with MR, congenital defects, or chronic illness places great stress upon the family, and siblings of the handicapped child are often the recipients of unrealistic demands and emotional neglect. Maternal responsibility (and/or guilt) requires that she spend a great deal of time with one child at the expense of others who may develop undesirable attention-seeking devices. This is especially likely to happen in a family with preexisting marital disharmony or personality difficulties. The pediatrician is in a unique preventive role as he can help the mother focus on the needs of all her children and offer support, counsel, or psychiatric referral. (No refs.) *E. L. Rowan.*

University of Michigan Medical School
Ann Arbor, Michigan 48104

277 GELLIS, SYDNEY S. A little bit of love --or a lot? *Hospital Practice*, 4(7): 9, 1969. (Editorial)

Further studies are needed to determine the effect of emotional deprivation on maternal-infant relations in the prenatal, postnatal, and perinatal stages of gestation. A recent survey gives evidence that the separation and isolation of infant and mother after delivery may be a contributing factor in the failure of infants to thrive. (No refs.) - *S. Half.*

MEDICAL ASPECTS--CONVULSIVE DISORDERS

278 KEEN, J. H. Significance of hypocalcaemia in neonatal convulsions. *Archives of Disease in Childhood*, 44(235):356-371, 1969.

Among 100 infants who had a generalized convulsion during the first 28 days of life, 38 were found to have hypocalcemia (serum calcium less than 7.5 mg/100 ml), and this was by far the most common etiology. The majority (71%) of the hypocalcemic infants had the first seizure between the fifth and eighth days of life. All but 4 were on artificial diets, and phosphorus loading certainly played a significant role in the development of the hypocalcemic tetany. The use of low phosphorus milks reversed the hypocalcemia. Cases tended to cluster in the first quarter of the year (January to March), but the reason for this is not known. Among 15 infants who were followed-up one year after seizures, one had myoclonus and 2 showed developmental retardation. Nothing in their neonatal course distinguished these infants from the 12 who were developing normally. (20 refs.)
E. L. Rowan.

Booth Hall Children's Hospital
Manchester 9, England

279 BRETT, EDWARD. Second thoughts on hemispherectomy in infantile hemiplegia. *Developmental Medicine and Child Neurology*, 11(3):374-376, 1969. (Annotation)

Cerebral hemispherectomy was once advocated in the treatment of infantile hemiplegia with intractable epilepsy and severe behavioral disorder. Short-term follow-up usually demonstrated improved function, reduced seizures, and improvement in behavior and intelligence even though the latter was often difficult to assess. Prolonged follow-up, however, has shown a high frequency of chronic bleeding and granular ependymitis with subsequent occlusion of the ventricular system. Enthusiasm for the procedure must be considerably dampened in view of these late sequelae. (7 refs.) - *E. L. Rowan.*

Hospital for Sick Children
London, W.C. 1, England

280 CHRISTOFF, NICHOLAS. Myoclonic encephalopathy of infants. *Archives of Neurology*, 21(3):229-234, 1969.

Two additional cases of the syndrome of generalized myoclonic disorder of late infancy first described by Kinsbourne were followed for 3 and 8 years, respectively. The disorder is characterized by an acute onset in a previously normal infant, a frequent association with infection, myoclonus especially of the trunk and eyes, an induction of remissions by corticosteroid therapy, and normal results of the usual laboratory examinations. Sequelae of MR and ataxia are frequent (both of these cases), and the dramatic remission with corticosteroids makes early treatment mandatory. The etiology of this syndrome has not been determined, but an unusual incidence of neuroblastoma and frequent immunoglobulin abnormalities have been noted. (18 refs.)
E. L. Rowan.

Mount Sinai School of Medicine
New York, New York 10029

281 SCOTT, DONALD. *About Epilepsy*. New York, New York, International Universities Press, 1969, 183 p. $6.00.

An understanding of the etiology, types, and conditions of epilepsy has helped to open a new world of freedom and acceptance for many epileptics, and those affected with this disorder now have a better chance to enjoy the same educational and employment opportunities as the non-epileptic. In past years, persons with epilepsy were barred from the most ordinary activities in the community; however, medical progress in treatment and modern enlightenment are bringing about a change of attitude in lawmakers, employers, educators, and the public-at-large. The prime medical advancement is the control of seizures by chemotherapy, anticonvulsants, medical techniques, or surgery. Normal intelligence is the rule in epilepsy; beliefs that low intelligence and epilepsy are related are being eliminated. MR, formerly blamed on epilepsy, may be due to brain injury from completely different causes. Many MR children have epileptic seizures, but frequently developmental

retardation was noted before the convulsions started. Most epileptic Ss can be employed in ordinary industry, and only a few need special rehabilitation. Nevertheless, there is still a need for more specialized clinics to deal with epileptic patients. (79-item bibliog.) - *S. Half.*

CONTENTS: Fits, Faints and Falls; What Causes Fits?; What Sorts of Fits Are There?; The Diagnosis of Fits; Faints and Falls: What Can the Doctor Do?; What Can the Surgeon Do? Children with Fits; Do Fits Affect the Mind? Epilepsy in History; Some Historical Epileptic People; Epilepsy in Literature; Epilepsy and Crime; The Care of the Epileptic Person; Marriage and Pregnancy; The Prevention of Fits; The Future.

282 GATH, ISAK. Effect of drugs on the somatosensory evoked potentials in myoclonic epilepsy. *Archives of Neurology*, 20(4):354-357, 1969.

Nitrazepam was effective in reducing the amplitude of the somatosensory evoked potentials in one case of progressive myoclonic epilepsy but was completely without effect in another case. In the first case, amplitudes were decreased from 27.9-60.4 mμ to 15.8-39.6 mμ and were accompanied by suppression of the myoclonus and by clinical improvement. Similar results, though less striking, were observed for diazepam in this patient. The lack of response in the second patient was probably because this S was in a late stage of the disease and could not respond to any medication. Somatosensory evoked potentials may have some use in evaluating the effect of drugs in myoclonic epilepsy. (11 refs.) *L. S. Ho.*

Department of Neurology
Rikshospitalet
Oslo, Norway

283 Folic acid and anticonvulsants. *Lancet*, 1(7608):1264-1265, 1969. (Letter)

Cerebrospinal fluid (CSF) folate studies which find no relation between anticonvulsants and CSF folate levels are not in agreement with the present series of studies. Macrocytosis (11-53%) and megaloblastic hemopoiesis (38%) incidences and the lowering of serum-folate levels provide evidence that anticonvulsants do influence folate metabolism. The association between folate and vitamin-B metabolism in epileptics and in neuropsychiatric illnesses should be further investigated. (21 refs.) - *E. Hays.*

The National Hospital
London, W.C. 1, England

MEDICAL ASPECTS--CHROMOSOMAL

284 LOZZIO, CARMEN B.; & KATTINE, ANTHONY A. Familial transmission of a chromosomal translocation t(2q+;Cp-). *Journal of Medical Genetics*, 6(2):174-179, 1969.

A stillborn child showed multiple congenital anomalies including communicating hydrocephalus, premature ossification and fusion of cranial sutures, dislocation of both tibia anterior to the femoral condyles, and lateral dislocation of the ankles. Cytogenetic studies revealed an unbalanced form of a reciprocal translocation t(2q+;Cp-) and partial trisomy for the short arm of one chromosome of the C group--probably a number 8. The father was a balanced translocation heterozygote. Offspring of a balanced carrier may be normal, a balanced translocation carrier, or they may have a deletion of the small arm of a C chromosome with a small duplication of chromosome number 2 or a duplication of the small arm of chromosome number 2 with a small deletion of the long arm of a number 2 (the case reported here). The severity of the last class will probably result in abortion, stillbirth, or neonatal death while deletions of the third type may or may not be viable. (22 refs.) *M. G. Conant.*

University of Tennessee Memorial Research
Center and Hospital
Knoxville, Tennessee 37916

285 KELCH, ROBERT P.; JANZEN, MARTHA K.; & GALL, JOHN C., JR. Multiple congenital anomalies in an infant with an elongated B-group chromosome. *American Journal of Mental Deficiency*, 74(3):436-440, 1969.

A case is presented of a female infant with microcephaly, hemangiomas of the scalp, upward slanting palpebral fissures, low hairline, webbing of the neck, left lower facial nerve paralysis, bilateral thenar skin tags, extended left fifth finger, generalized rigidity, and a hoarse cry secondary to absent movement of the left vocal cord. Chromosome analysis revealed an enlarged B-group chromosome probably representing an autosomal translocation. Although the origin of the translocated material could not be determined with certainty, the finding of chromatid gaps and deletions in the long arms of B-group chromosomes of some of the mother's cells raises the possibility that the infant may represent a B/B translocation with resulting partial trisomy. (16 refs.) - *Journal abstract.*

Department of Pediatrics
Ann Arbor, Michigan 48104

286 NEU, RICHARD L.; BARGMAN, GERALD J.; & *GARDNER, LYTT I. Disappearance of a 47,XX,C+ leucocyte cell line in an infant who had previously exhibited 46,XX/47,XX,C+ mosaicism. *Pediatrics*, 43(4):623-626, 1969.

Follow-up studies on a 2 year, 10-month-old girl who had had 46,XX/47,XX,C+ mosaicism (demonstrated at 7 months of age) showed that the abnormal karyotype could not be cultured from the leukocytes. At 2 1/2 years, clinical findings were essentially the same as when she was first studied, and she remains severely mentally and physically retarded. Approximately 7% of the bone marrow metaphases contained the 47,XX,C+ anomaly. Other cases have been reported in which one cell line appeared to have a definite selective advantage over others and gradually replaced the nonselective cell lines. This may explain cases in which anomalies usually associated with known trisomy syndromes are found, but the chromosomal complement is normal. The mosaicism may exist during fetal development and may influence the embryogenesis, yet it may disappear before chromosomal analysis is performed. (12 refs.) - *L. S. Ho.*

*Upstate Medical Center
Syracuse, New York 13210

287 WURSTER, D.; POMEROY, J.; BENIRSCHKE, K.; & HOEFNAGEL, D. Mental deficiency and malformations in a boy with a group-C ring chromosome: 46,XY,Cr. *Journal of Mental Deficiency Research*, 13(3):184-190, 1969.

A 2-year-old boy showed MR, somatic growth retardation, and a number of minor congenital abnormalities including low-set ears, epicanthic folds, dislocated left hip, and bilateral clubfeet. There was a moderate increase in the excretion of phosphoethanolamine and β-aminoisobutyric acid. A C-group ring chromosome was present in 28 karyotypes examined; however, it was not possible to ascertain which C-group chromosome had formed this ring. The modal numbers and karyotypes of the mother, father, and 2 sibs were normal. (12 refs.) - *M. G. Conant.*

Dartmouth Medical School
Hanover, New Hampshire 03755

288 DE CAPOA, A.; ALLEN, F. H., JR.; GOLD, A. P.; KOENIGSBERGER, R.; & MILLER, O. J. Presumptive C/15 translocation and familial large Y identified by autoradiography. *Journal of Medical Genetics*, 6(1):89-94, 1969.

Karyotypic examination of a 9-month-old boy with psychomotor retardation and multiple minor malformations revealed all cells to have 45 chromosomes; one chromosome was missing from both the C and D groups while a large metacentric chromosome similar in morphology to a number 3, and a large Y chromosome were present. The large Y was also present in both the proband's father and brother neither of whom showed any other remarkable features. By grain counts and labeling patterns, the D group chromosome was tentatively identified as an early replicating number 15. The particular C group component of the translocation chromosome could not be identified. Genetic marker studies were unremarkable, and no specific gene loci could be determined. (7 refs.) - *E. L. Rowan.*

Columbia University
New York, New York 10032

289 ABUELO, DIANNE; & FEINGOLD, MURRAY. Scalp defects in trisomy 13. *Clinical Pediatrics*, 8(7):416-417, 1969.

Scalp defects are frequently present in trisomy 13, the major clinical features of which are microphthalmia and other eye defects, abnormal ears, broad nose, cleft lip and palate, congenital heart disease, failure to thrive, and death in early infancy. The lesions,

which may be missed if not specifically looked for, appear as punched out ulcerations of the scalp in the region of the vertex. In 2 patients who survived the neonatal period, the lesions healed during the first 2 to 3 months of life. (6 refs.) - *M. G. Conant.*

Tufts-New England Medical Center Hospitals
Boston, Massachusetts 02111

290 GARSON, O. MARGARET; BAIKIE, A. G.; FERGUSON, JEAN; & GREER, C. H. Double autosomal trisomy and mosaicism for three cell lines in man: Coexisting trisomy 13-15, trisomy 17-18, and a minority cell line trisomic for a chromosome of both groups. *Journal of Medical Genetics*, 6(2):209-215, 1969.

A female infant with multiple congenital anomalies was found to be doubly trisomic with mosaicism for 3 cell lines--47,XX,D+/47,XX, ?18+/48,XX,D+,?18+. The 47,XX,?18+ cell line was preponderant, and the cells of the 48,XX, D+,?18+ line were least numerous. The anomalies included low-set malformed ears, micrognathia, the surrender position of the hands, clinical evidence of congenital heart disease, limitation of abduction of the hips, abnormalities of the feet (all characteristic of trisomy 17-18) and coloboma, retinal dysplasia, and microphthalmia (all characteristic of trisomy 13-15). The cell line trisomic for group 17-18 probably had a selective advantage over the others; this would explain the preponderance of cells trisomic for this group and for the more numerous clinical symptoms associated with trisomy 17-18. Both parents were normal. (38 refs.)
M. G. Conant.

University of Melbourne Department of Medicine
Melbourne, Victoria, Australia

291 LUCAS, MARY. Translocation between both members of chromosome pair number 15 causing recurrent abortions. *Annals of Human Genetics*, 32(4):347-352, 1969.

A phenotypically normal woman had a history of at least 13 unsuccessful pregnancies all of which terminated before the fifteenth week; she had had no normal pregnancies. Chromosome analysis revealed 45 chromosomes including one which was apparently a D/D translocation, and autoradiographic studies suggested that the translocation involved both homologues of the number 15 pair. The product of the most recent abortion had 46 chromosomes including the D/D translocation. Apparently the patient is able to form only abnormal zygotes (either monosomic or trisomic for number 15), none of which would be viable to term. (10 refs.)
M. G. Conant.

Galton Laboratory
London, England

292 GEISER, C. F.; & SCHINDLER, A. M. Long survival in a male with 18-trisomy syndrome and Wilms' tumor. *Pediatrics*, 44(1): 111-116, 1969.

An 11 1/2-year-old boy is the oldest known surviving male with the 18-trisomy syndrome. In addition to the chromosomal anomaly and related congenital malformations, the boy developed a Wilms' tumor which was removed at 2 years of age. The trisomic syndrome was verified autoradiographically at age 11 1/2, and since no normal cells were found, mosaicism seems unlikely. The long survival, marked hypotonia, and the absence of overlapping of the fingers are peculiarities of this S, and these symptoms obscured clinical recognition of the 18-trisomy syndrome. Since congenital anomalies of the urinary system are rather frequent in 18-trisomy, the appearance of a Wilms' tumor is not too surprising. In addition, since patients with this chromosomal aberration usually die before 6 months of age, it is likely that such tumors have no chance to develop. (28 refs.) - *L. S. Ho.*

Children's Cancer Research Foundation
Boston, Massachusetts 02115

293 WEISS, LESTER; & MAYEDA, K. A patient with a short arm deletion of chromosome 18 (46,XY,18p-). *Journal of Medical Genetics*, 6(2):216-219, 1969.

A 37-month-old male with MR, short stature, hypotonia, bilateral clinodactyly, and low verbal scores on psychological testing was found to have a short arm deletion of chromosome 18. The karyotypes of the parents and a female sibling were normal. Genetic analysis of the blood group genes indicates that the ABO, Rh, and MN loci are not located in the short arm of chromosome 18. The spectrum of anomalies associated with this chromosome deletion may eventually be clarified. (22 refs.) - *M. G. Conant.*

Henry Ford Hospital
Detroit, Michigan 48202

294 WALD, STEWART; ENGEL, ERIC; NANCE, WALTER E.; DAVIES, JACK; PUYAU, FRANCIS A.; & SINCLAIR-SMITH, BRUCE C. E ring chromosome with persistent left superior vena cava and hypertrophic subaortic stenosis. *Journal of Medical Genetics*, 6(3):328-333, 1969.

A 15-year-old girl was diagnosed at age 12 as having an E ring chromosome aberration; because of fingernail cyanosis, angiography was performed, and an association of hypertrophic subaortic stenosis and a persistent left superior vena cava draining into the left atrium was discovered. This particular association has not been noted before in the E ring chromosomal anomaly, although other cardiac defects are often found. Cytogenetic studies on lymphocyte cultures and bone marrow cells found cells with 46 chromosomes including an E ring and cells with only 45 chromosomes in which the ring was eliminated. Thymidine labeling demonstrated that the involved chromosome was probably a late replicating member of pair 18. Because the cardiac lesions may not be apparent upon physical examination, angiography should be used to study the heart condition in the E ring chromosome syndrome. (26 refs.) - *L. S. Ho.*

Vanderbilt University Medical School
Nashville, Tennessee 37205

295 CHALLACOMBE, D. N.; & TAYLOR, ANGELA. Monosomy for a G autosome. *Archives of Disease in Childhood*, 44(233):113-119, 1969.

An infant with congenital abnormalities including an antimongoloid slant to the palpebral fissures, low-set ears, prominent nasal bridge, micrognathos, hypospadias, retarded physical and mental development, hypertonia, pyloric stenosis, and persistent vomiting was found to have 2 cell lines when studied cytogenetically; one cell line had 45 chromosomes with a missing G-group autosome, and the other line had 46 chromosomes with a small chromosome of peculiar appearance. A ring chromosome was identified in 25% of the latter cells. A comparison with other cases of G autosomy suggests that the symptoms seen in the proband probably represent a single syndrome. The presence of hypertonia in G autosomy is of note when it is contrasted with the hypotonia found in Down's syndrome (G trisomy). Attempts to determine the gene loci of several blood groups and biochemical factors were unproductive. (12 refs.) *L. S. Ho.*

St. Mary's Hospital
London, W.2, England

296 PETIT, P.; & GALLEZ, A. Etude clinique et cytogenetique longitudinale d'un cas de mosaique 46,XX/47,XX,G+ (mosaique de trisomie 21) (A longitudinal clinical and cytogenetic study of a case of mosaicism 46,XX/47,XX,G+ [mosaicism for trisomy 21]). *Helvetica Paediatrica Acta*, 24(6):582-588, 1969.

A 5 5/12-year-old girl is presented with physical features suggestive of Down's syndrome (mongolism). Additional abnormalities include thoracic skeletal anomalies and ventricular septal defect with pulmonary valvular stenosis. Four cytogenetic studies of blood samples were performed during 2 years. Chromosomal mosaicism, consisting of normal/trisomy 21 was found (20% of trisomic cells and 80% of normal cells). There was no change in cell proportion with the time within the period of the study. The presence of stability of cell proportion or the evidence of cell selection in other cases of mosaic subjects is presented. (15 refs.) - *Journal summary.*

Hopital St-Pierre
Brussels, Belgium

297 NIELSEN, J.; TSUBOI, T.; FRIEDRICH, URSULA; MIKKELSEN, MARGARETA; LUND, BIRTHE; & STEINICKE, O. Additional small acrocentric chromosome: Two cases. *Journal of Mental Deficiency Research*, 13(2):106-122, 1969.

Two boys (CA 7 and 15 mos) with some clinical symptoms of trisomy 13-15, 17-18, and 22 were found to have an additional small acrocentric chromosome, but neither had symptoms of Down's syndrome. Both boys had low-set abnormal ears, micrognathia, and MR. In addition, both mothers had histories of abortion as well as family members who were MR. One boy had 5 of the clinical symptoms associated with trisomy 13-15 and 5 of those associated with trisomy 17-18, while the other boy had 4 of the symptoms associated with 13-15 trisomy and 4 of those associated with 17-18 trisomy. Autoradiographic studies of the chromosome labeling patterns suggest that the first patient (the 7-month-old) might represent partial trisomy 13-15, while the other patient (the 15-month-old) represents partial trisomy 17-18. (25 refs.) *B. Bradley.*

Arhus State Hospital
Risskov, Denmark

298 KIRMAN, BRIAN H. Down's syndrome. In: Wortis, Joseph, ed. *Mental Retardation: An Annual Review-- Volume I.* New York, New York, Grune & Stratton, 1970, p. 57-74.

The history and future of research on Down's syndrome are presented in terms of chromosomal studies, terminology, recurrence risk, mosaicism, translocation, etiology, diagnosis, anatomy, specific organ disorders, life expectation, physiology, psychology, and development. Most cases of Down's syndrome are sporadic occurrences with maternal age playing an important role; however, a minority of cases are genetically transmitted because of the presence of maternal or paternal mosaicism or balanced translocations of chromosomes 21 or 22. Direct evidence of familial predisposition to chromosome errors is limited, but such a predisposition may play some part in the etiology. In addition, some clustering of cases of Down's syndrome are noted; this would suggest that an environmental factor may also be implicated in the etiology. Diagnosis of Down's syndrome is usually done on the basis of the total impression rather than on any group of particular signs. Subsequent mental and physical development may depend in part on whether or not the child is institutionalized; institutionalization appears to retard development. The decision on institutionalization is often made on the basis of the physician's attitude at the initial interview with the parents. Although life expectancy for these Ss has increased, most do not live to the age of 50, and over 1/2 die by age 5. Mongoloids appear to run an increased risk of leukemia, respiratory disorders, heart lesions, and congenital duodenal stenosis. Although mental development appears to progress normally at birth and up to 6 months of age, IQ scores gradually decrease with age from about 80 at one year of age to 30 at older ages. (123 refs.)
L. S. Ho.

299 SAXL, O.; TICHY, J.; HRADSKY, M.; & HRSTKA, V. Down's Syndrom--Mongolismus: Eine elektronenmikroskopische Studie der Dunndarmschleimhaut (Down's syndrome--mongolism: An electron microscopic study of the small intestine membrane). *Zeitschrift fuer Gastroenterologie*, 6(1):11-18, 1968.

A submicroscopic study of the membrane of the small intestine in 3 mongoloid children showed apical enterocyte alterations including sparseness of the cytoplasmic structures and gross changes in the microvilli. These pathological changes were visible only when the membrane was viewed through an electron microscope, and they are considered to be degenerative in nature. (22 refs.)
S. L. Hamersley.

Stouracova Forschungsinstitut fuer Padiatrie
Brno, Czechoslovakia

300 TICHY, J.; SAXL, O.; HRADSKY, M.; & HRSTKA, V. Das Down'sche Syndrom (Mongolismus): 2. Mitteilung--Elektronenmikroskopische Studie der Magenschleimhaut (Down's syndrome [mongolism]: Communication 2. Electron microscopic study of the stomach membrane). *Zeitschrift fuer Gastroenterologie*, 6(4):279-286, 1968.

Submicroscopic studies of the stomach membranes of 3 mongoloid children showed only minor changes in the apical cell structures which were degenerative in nature. A histological preparation showed signs of subchronic gastritis; however, no reason for this was determined. (23 refs.)
S. L. Hamersley.

Safarikova Ul. 581/21c
Hradec Kralove, Czechoslovakia

301 SAXL, O.; TICHY, J.; & STOURACOVA, O. Down's Syndrom (Mongolismus): Elektronenmikroskopische Untersuchungen der Leber. 3. Mitteilung (Down's syndrome [mongolism]: Electron microscopic examination of the liver. Communication 3). *Zeitschrift fuer Gastroenterologie*, 6(6):408-413, 1968.

Microscopic and submicroscopic studies of liver cells of 6 mongoloid children showed degenerative changes which indicate malabsorption and maldigestion during developmental stages. Indications are that it may be possible to arrest these processes earlier and, thereby, prevent further damage. (23 refs.)
S. L. Hamersley.

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Brno, Czechoslovakia

302 WISCONSIN ASSOCIATION FOR RETARDED CHILDREN. *Mongoloid Conference Proceedings.* (Conference of the Mongoloid Individual, His Family, and His Community, held April 10-11, 1968, Milwaukee, Wisconsin). Madison, Wisconsin, 1969, 41 p. $2.00.

This conference was held to provide parents of mongoloid children and adults, personnel serving the mongoloid, and other interested

persons with as much information as possible on current aspects of mongolism. The conference covered areas of interest including etiology, health management problems, educational needs, needs of the older mongoloid individual, and current and future research. Most mongoloid children represent single, isolated cases of a chromosomal anomaly; the risk of recurrence is approximately 1 to 2%, and parents usually have normal chromosomal complements. Because mongolism is due to a chromosomal anomaly, there are often associated congenital malformations which can cause medical problems in an affected child. Mongoloid children can be expected to have an overall larger number of illnesses than normal children. Most mongoloid children will fall into the trainable category, and as such, they will probably never be able to function independently but will have to be trained and maintained in a sheltered environment. Planning for mongoloid individuals should emphasize a continuum of care rather than separate, compartmentalized programs. (6 refs.) *S. Half.*

CONTENTS: Mongolism--Genetic Considerations (Optiz); Most Frequent Medical Problems Occurring in Mongoloid Infants and Children (Kaveggia); Educational Services for the Mongoloid (Contrucci); Meeting the Needs of the Older Mongoloid Individual Through Sheltered Employment (Allen); Meeting the Needs of the Older Mongoloid Individual Through Adult Day Care (Probstein); Meeting the Needs of the Older Mongoloid Individual Through Residential Care (Townsend); Closing Comments (Johnson).

303 OPITZ, J. M. Mongolism - Genetic considerations. In: Wisconsin Association for Retarded Children. *Mongoloid Conference Proceedings*. (Conference of the Mongoloid Individual, His Family, and His Community, held April 10-11, 1968, Milwaukee, Wisconsin). Madison, Wisconsin, 1969, p. 3-12.

Down's syndrome (mongolism) is due to an abnormality in either the number or the structure of a chromosome. The most common chromosome anomaly is trisomy 21 in which there are 3 number 21 chromosomes rather than a single pair. This condition occurs once in about 600 live births, and it is more common in children of mothers over 35 years of age. This type of mongolism is not really inherited, and the chances of a young mother having another mongoloid child are only slightly higher than those of the general population. Down's syndrome may also be due to a chromosomal disorder called translocation; this may be inherited, or it can occur as an accident during embryogenesis of the child. The recurrence risk can be calculated for each type of mongolism by chromosomal analyses of the parents. (6 refs.) - *S. Half*

304 KAVEGGIA, ELISABETH. Most frequent medical problems occurring in mongoloid infants and children. In: Wisconsin Association for Retarded Children. *Mongoloid Conference Proceedings*. (Conference of the Mongoloid Individual, His Family, and His Community, held April 10-11, 1968, Milwaukee, Wisconsin). Madison, Wisconsin, 1969, p. 13-18.

Medical problems found in mongoloid individuals include congenital anomalies associated with chromosomal defects and acute and chronic illnesses which are usually more severe and occur more often than in normal children. Congenital anomalies can include heart defects, intestinal obstructions, hernias, webbed fingers or toes, and clubfoot. These disorders are treated the same in mongoloid children as in normal children. The respiratory tract is subject to more frequent and more severe infections in mongoloids than in normal children. This can be attributed in large part to the anatomy of the nasal passages and to the poor muscle tone which is present in mongoTOids. In addition, mongoloid children do not seem to be able to build up immunity to infection as well as normal children. The gastro-intestinal tract is also subject to disorders in mongoloid children; feeding problems and constipation are quite common. In addition, severe abdominal disorders (appendicitis, bowel obstruction, and peritonitis) often present with relatively mild symptoms in the mongoloid. (No refs.) *S. Half.*

305 CORNWELL, ANNE CHRISTAKE; & *BIRCH, HERBERT G. Psychological and social development in home-reared children with Down's syndrome (mongolism). *American Journal of Mental Deficiency*, 74(3):341-350, 1969.

Data of 44 home-reared children with Down's syndrome (mongolism) on the Stanford-Binet and on the Vineland Social Maturity Scale revealed a broad range of both intellectual and social competence. IQ scores decreased with age whereas SQ scores did not decline as systematically. The age-specific patterns indicated a slow accretion of certain social functions and concomitant impoverishment in advanced social skills. Severe limitations in language and conceptualization were noted

throughout. The data supported the hypothesis that in Down's syndrome there is both a developmental lag and an arrest of certain psychological and social capacities. (26 refs.) - *Journal abstract.*

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306 COLLMANN, R. D.; & STOLLER, A. Shift of childbirth to younger mothers, and its effect on the incidence of mongolism in Victoria, Australia, 1939-1964. *Journal of Mental Deficiency Research,* 13(1):13-19, 1969.

An increasing percentage of births to younger mothers and a decreasing percentage to older mothers in Victoria (Australia) from 1939 to 1964 resulted in a lower incidence of mongolism. In 1939, the percentage of births to mothers under 20 years old was 4.5; in 1964, the percentage rose to 8.4. In 1939, the percentage of mothers who were 35 years of age or more was 16.1 while by 1964, these figures had decreased to 12.5. The expected percentage incidence of mongoloid births fell from 0.158 (1939) to 0.131 (1964)--a drop of 17%. During the period 1943 to 1947, the percentage of all mothers 35 years of age and over was 15.9, the maternal age at childbirth in years for all live births was 28.4, the expected percentage incidence of mongoloid births was 0.153, and the observed percentage incidence was 0.167. During 1948 to 1952, the respective figures were 14.4, 27.8, 0.144, and 0.144. During the period 1953 to 1957, the figures were 13.2, 27.7, 0.14, and 0.132. A close similarity of figures for England and Wales to those for Victoria may reflect a social trend for older mothers to work outside the home and to an increased use of contraceptives by older women. (12 refs.) *F. J. McNulty.*

Mental Health Research Institute
Melbourne, Australia

307 STOLLER, A.; & COLLMANN, R. D. Grandmaternal age at birth of mothers of children with Down's syndrome (mongolism). *Journal of Mental Deficiency Research,* 13(3): 201-205, 1969.

Since 10% of mongoloids theoretically may be born to mosaic mothers, these mongoloids (maternal age independent) should be born to younger mothers. According to this hypothesis, the mean grandmaternal age of mongoloids born to younger mothers should be higher than that of controls and higher than that of mongoloids born to elderly mothers. The mean maternal age at the birth of 328 mongoloids in Victoria (Australia) from 1945 to 1965 was 34.4 years, and the mean grandmaternal age at the birth of the mother was 29.8 years. There were no significant differences between mean grandmaternal ages for mothers less than 25 years, 25-30 years, 30-40 years, and over 40 years of age at the birth of the mongoloid child. (7 refs.) - *M. G. Conant.*

Institute for Mental Health Research
Parkville, 3052, Australia

308 ZSAKO, STEVEN; & KAPLAN, ARNOLD R. Titres of antistreptolysin O in mothers of children affected with Down's syndrome. *Nature,* 223(5212):1281-1282, 1969. (Letter)

A comparison of antistreptolysin O titers in 50 mothers of children with Down's syndrome (G_1 trisomy) and 50 control mothers showed significantly higher titers in the group whose children had chromosomal aneuploidy. This finding probably does not represent an increased infection rate with streptococcus or implicate this agent in the etiology of Down's syndrome, but rather points up basic immunological differences between the groups. Immunologic deviations may predispose to G_1 chromosome nondisjunction. (3 refs.) *E. L. Rowan.*

Euclid Clinic Foundation
Euclid, Ohio 44119

309 ABUL-FADL, Y.; & SCOTT, ROBERT B. Increased leucocyte glycogen in Down's syndrome. *Nature,* 223(5203):310-311, 1969. (Letter)

The leukocyte glycogen concentration (13.64 mg/10^9 neutrophiles) and alkaline phosphatase activity scores (114/100 neutrophiles) of 13 children (CA 4 mos to 19 yrs) with Down's syndrome were significantly higher than control values (8.48 and 16, respectively). Leukocyte glycogen and alkaline phosphatase activity usually vary in parallel; both are increased in acute infections, polycythemia vera, pregnancy, and after administration of estrogen. Both appear to be increased in Down's syndrome; however, the biochemical basis for this is by no means clear. (9 refs.) *L. S. Ho.*

Medical College of Virginia
Richmond, Virginia 23219

310 STEPHENS, M. CARLA; & *MENKES, JOHN H. Cerebral lipids in Down's syndrome. *Developmental Medicine and Child Neurology*, 11(3):346-352, 1969.

Frontal lobe grey and white matter lipid composition was found not to be abnormal in 4 patients with Down's syndrome (CAs 3 1/2 mos to 65 yrs). There were no gross morphological abnormalities of the brain nor were there any abnormalities in the pattern of fatty acids of the glycolipids. Cerebral cholesterol was reduced in the 2 older Ss; however, this may have been an artefact or a result of their terminal illnesses. It seems probable that the enzyme abnormalities found in Down's syndrome are the result of a constant derangement of metabolic functions which continues throughout the mongoloid's prenatal and postnatal life, while in single gene disorders, the major metabolic abnormalities occur only after the infant is deprived of the protection of the maternal intrauterine environment. The biochemical basis for the developmental disturbance in mongolism needs further elucidation. (26 refs.) - *L. S. Ho.*

*University of California at Los Angeles
Los Angeles, California 90024

311 AARSKOG, DAGFINN. Autoimmune thyroid disease in children with mongolism. *Archives of Disease in Childhood*, 44(236): 454-460, 1969.

Three girls with mongolism were also noted to have thyroid dysfunction, and all were seropositive for antithyroglobulin antibodies. Two were hypothyroid, thus bringing to 12 the total cases of coexisting mongolism and hypothyroidism reported in the literature. The third child was the eleventh reported case of coexisting mongolism and hyperthyroidism. Surveys show a high incidence of thyroid antibodies in mongoloids and suggest that mongolism may predispose to autoimmune thyroid disease. (51 refs.) - *E. L. Rowan.*

University of Bergen School of Medicine
Bergen, Norway

312 HILLMAN, JANET C. Thyroid-stimulating hormone and thyroxine levels in the plasma of patients with Down's syndrome. *Journal of Mental Deficiency Research*. 13(3): 191-196, 1969.

Thyroid-stimulating hormone (TSH) levels were determined by radioimmunoassay in 35 mongoloid patients (11 females and 24 males) aged 12.5 to 39 years and in 12 controls (5 females and 7 males) aged 12 to 39 years. Plasma thyroxine levels in the mongoloid patients were also determined by competitive protein binding analysis using thyroxine labeled with iodine-131. There was no difference in TSH levels between any of the groups, and thyroxine values were all within normal limits. The thyroid gland in patients with Down's syndrome does not appear to need the stimulation of increased levels of TSH in order to secrete normal levels of thyroxine. (13 refs.) - *M. G. Conant.*

Willowbrook State School
Staten Island, New York 10314

313 MILUNSKY, AUBREY. Cystic fibrosis and Down's syndrome. *Pediatrics*, 42(3): 501-504, 1968.

Three children (CA 2 1/2 mos to 6 yrs 11 mos) with stigmata of Down's syndrome were found to have cystic fibrosis as well. All 3 Ss had respiratory tract disorders (recurrent in the 2 older children), and all had abnormal sweat tests and clinical features of cystic fibrosis. The incidence of cystic fibrosis is 1/1,000 live births while that of mongolism is 1/600 (approximately); therefore, the association of these 2 disorders may be by chance alone. Nevertheless, both syndromes have certain features in common including elevated sodium and chloride in the sweat, similar abnormal nailbed morphology, a higher than average incidence of diabetes and intestinal atresia. It is possible that cystic fibrosis may occur more often in mongoloids than previously thought, and with the higher mortality rates for both conditions, it would be expected that many children with both disorders might never outlive infancy. A sweat gland test should be performed in any child having recurrent pneumonia; such a test should be administered especially to a mongoloid child with such disorders. (21 refs.) - *M. Drossman.*

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Boston, Massachusetts 02111

314 HECHT, FREDERICK; NIEVAARD, J. EDWARD; DUNCANSON, NEIL; MILLER, JAMES R.; HIGGINS, JAMES V.; KIMBERLING, WILLIAM J.; WALKER, FRANK A.; SMITH, GEORGE S.; THULINE, HORACE C.; & TISCHLER, BLUME. Double aneuploidy: The frequency of XXY in males with Down's syndrome. *American Journal of Human Genetics*, 12(4):352-359, 1969.

Of 772 mongoloid males studied, only one was found to have Down's syndrome and an XXY

karyotype on buccal smear examination. This S was 9 years old, MR (IQ 28), growth retarded, and had numerous stigmata of Down's syndrome including muscular hypotonia, brachycephaly, mongoloid facies, congenital heart disease, and brushfield spots. In addition, he had hypospadius and an arm span that was less than his height. His family and birth history were noncontributory. A testicular biopsy was consistent with XXY Klinefelter's syndrome. Although it is expected that patients with one chromosome abnormality would be more likely to have another chromosomal aberration, the combined expected frequencies of Ss with Down's and Klinefelter's syndromes have not been met in studies on these 2 disorders (only 3 of 2,029 males with Down's syndrome also had XXY compared to an expected frequency of 9.25 individuals). It also appears that the frequency of these 2 disorders occurring together is lower than that expected when studied by maternal age criteria. Because some data do show an increase in newborn males with both disorders, it would appear that strong selective forces act against such double aneuploids after birth. (20 refs.) *M. Drosman.*

University of Oregon Medical School
Portland, Oregon 97201

315 KUMBNANI, H. K.; & PFEIFFER, R. A. Partial trisomy in a child with features suggesting mongolism. *Journal of Medical Genetics*, 6(2):201-205, 1969.

A 7-month-old female infant showed psychomotor retardation, hypoplasia of the toes and nails, an iliac index of 68, and peculiar facies suggestive of mongolism. Cytogenetic study of cells from the child revealed that one chromosome of the G group was missing; however, autoradiographic studies were inconclusive as to which pair the missing chromosome belonged. Cells from both parents were normal. This translocation probably occurred in a premeiotic cell, the segregation of which would have led to the trisomy of the translocated portion. (14 refs.) *M. G. Conant.*

Wilhelms-Universitat Munster
Munster, West Germany

316 RIDLER, M. A. C.; PENDREY, MADELEINE J.; FAUNCH, JANET A.; & BERG, J. M. Association of D/D translocation with mongolism. *Journal of Mental Deficiency Research*, 13(2): 89-98, 1969.

A 21 1/2-year-old girl with Down's syndrome (trisomy G) was found to have a D/D translocation as well. A pedigree of this family showed that the D/D translocation had been transmitted for 3 generations. The individual D chromosome involved could not be identified; however, it appeared morphologically similar to a number 3. All of the 10 determined translocation carriers were above average in intelligence and health, and miscarriage and stillbirth figures for the entire family did not vary from the figures for the general population. Nine of 11 tested descendents of the proband's paternal grandmother had the translocation, and 5 were offspring of a single carrier father. This is consistent with other data which suggest somatic selection for sperm which carry this translocation. Dermatoglyphics of the proband were not those usually found in Down's syndrome. The translocation appears to segregate independently of blood groups and other blood factors. In a series of British mongoloids, 4 were found to have the D/D translocation; this gives an incidence of 1/552 individuals expected to have both chromosomal disorders. The estimated incidence of D/D translocation in the general population is 1/800. (11 refs.) - *E. Hays.*

Harperbury Hospital
St. Albans, Hertfordshire, England

317 ATKINS, LEONARD; & FEINGOLD, MURRAY. 46,XY,21qi/46,XY,21p-:Mosaicism in a child with Down's syndrome. *Journal of Medical Genetics*, 6(2):206-208, 1969.

Chromosomal studies on blood and skin biopsy specimens from a 3-year-old boy with Down's syndrome revealed the presence of 2 cell lines (each of which had 46 chromosomes). One line had a metacentric chromosome similar to a member of group 19-20 which replaced a member of group 21-22, and the other cell line had a telocentric chromosome 21. These chromosomal anomalies probably occurred through formation of a telocentric number 21 chromosome in a parental gonad, transverse division of the centromere of this telocentric chromosome, and isochromosome formation after the first zygotic division. Leukocytes from both parents were normal. (7 refs.) *M. G. Conant.*

Harvard Medical School
Boston, Massachusetts 02115

318 JOSSO, NATHALIE; NEZELOF, CHRISTIAN; PICON, REGINE; De GROUCHY, JEAN; DRAY, FERNAND; & RAPPAPORT, RAPHAEL. Gonadoblastoma in gonadal dysgenesis: A report of two cases with 46,XY/45,X mosaicism. *Journal of Pediatrics*, 74(3):425-437, 1969.

Studies of 2 growth-retarded girls (CA 13 yrs and 15 yrs) with 46,XY/45,X mosaicism revealed a bilateral gonadoblastoma in both cases. In the 13-year-old, the tumor was associated with undifferentiated fibrous tissue while in the 15-year-old, it was found with abnormal testicular tissue. The gonadoblastoma nests in both Ss contained primitive germ cells which stained strongly with PAS and had high alkaline phosphatase activities. Gonadoblastoma occurs only in Ss with gonadal dysgenesis and an XY cell line. Some of these Ss present as intersexes, some as Turner's syndrome patients, and some are reared as normal males. Other Ss may have typical female phenotypes, and these cases are found at puberty when amenorrhea and insufficient breast development lead to the accidental discovery of the tumor. Usually, surgical removal of the gonadoblastoma is sufficient treatment. (57 refs.) - *M. Drossman.*

Hopital des Enfants Malades
Paris, France

319 ROSS, G. T.; TJIO, J. H.; & LIPSETT, M. B. Cytogenetic studies of presumptively monozygotic twin girls discordant for gonadal dysgenesis. *Journal of Clinical Endocrinology and Metabolism*, 29(4):440-445, 1969.

Chromosomal studies on monozygotic twin girls showed that sex chromosome mosaicism 45,X/47,XXX was present in the blood lymphocytes and bone marrow cells in both girls and in the skin fibroblasts of the twin with gonadal dysgenesis; however, a 47,XXX chromosome karyotype predominated in the fibroblasts of the phenotypically normal girl. The difference in the tissue distribution of cells with the sex chromosome aberration offers an explanation for the different phenotypes observed. (12 refs.) - *L. S. Ho.*

National Institutes of Health
Bethesda, Maryland 20014

320 NORA, JAMES L.; & SINHA, ANIL K. Direct familial transmission of the Turner phenotype. *American Journal of Diseases of Children*, 116(4):343-350, 1968.

Three families in which women with the somatic features of Turner's syndrome have produced offspring with these features were studied; direct transmission of phenotypic features was through affected women to both sons and daughters. Dermatoglyphic examination, cardiac evaluation, patterns of sex chromatin distribution, and chromosomal preparations were obtained, and features which were observed in all 8 affected individuals were shortness, distal axial triradius, and malformed ears. Webbing of the neck, low posterior hairline, ptosis, and cardiovascular anomalies were seen in over 1/2 of the patients. No gross chromosomal abnormalities were found; therefore, the patients had either the XX Turner phenotype or the XY Turner phenotype. The data suggest X-linked dominant inheritance; however, they do not differentiate between a single mutant gene and a submicroscopic deletion. A fertile male with XY Turner phenotype who transmits these features to a son would disprove X-linked inheritance; however, such an individual has not yet been located. (17 refs.) *V. G. Votano.*

Baylor University College of Medicine
Houston, Texas 77025

321 RHODES, K.; MARKHAM, R. L.; MAXWELL, P. M.; & MONK-JONES, M. E. Immunoglobulins and the X-chromosome. *British Medical Journal*, 3(5668):439-441, 1969.

Serum levels of immunoglobulins (Ig) G, M, and A were determined in 28 women with an additional X-chromosome (XXX) and in equal numbers of age-matched normal women and men. Mean IgM levels were found to be highest in the XXX group, intermediate in normal women, and lowest in men; these differences were statistically significant. Mean IgM values obtained from 7 XXY and 3 XXXY cases were almost identical with those of normal women and XXX women respectively. No such sex linkage was observed for IgA and IgG levels. These results support the suggestion that the serum level of IgM is related to the number of X chromosomes present. (11 refs.) *Journal summary.*

Royal Free Hospital
London, W.C.1, England

322 ZOLLINGER, H. Das XXXY-Syndrom: Zwei neue Beobachtungen im Kleinkindesalter und eine Literaturubersicht (The XXXY syndrome: Observations based on 2 pre-puberal children and on a literature review). *Helvetica Paediatrica Acta*, 24(6):589-599, 1969.

A discussion of the clinical findings of the XXXY-syndrome, based on 2 personally observed pre-puberal cases and on 15 cases from the literature is presented. Severe mental deficiency, underdeveloped testes, and multiple minor abnormalities are the most striking symptoms. The symptomatology ranges between that of the classical XXY-Klinefelter-syndrome and that of the XXXXY-syndrome. Yet, it is not possible to differentiate clinically each case from the XXXXY-syndrome. The cause is probably a double non-disjunction in oogenesis (demonstrated in one of the present cases by Xg blood group finding), which depends on maternal age. (22 refs.) - *Journal summary*.

Universitatskinderklinik Zurich
Zurich, Switzerland

323 COURT BROWN, W. M.; PRICE, W. H.; & JACOBS, PATRICIA A. Further information on the identity of 47,XYY males. *British Medical Journal*, 2(5601):325-328, 1968.

Fifteen abnormal males who have 47,XYY sex chromosome complements or who are mosaics in whom the XYY cell line is dominant were studied in order to emphasize the normal sexual development of these individuals and to point out that they may be found in other groups than those in maximum security hospitals or prisons. All of the Ss were examined cytologically by means of lymphocyte culture. At least 9 of these Ss were MR, and although some of the other Ss were of average intelligence, most were functioning in the lowest socioeconomic groups. Many of these males can be found in hospitals for the MR, schools for the MR, psychiatric clinics, and in approved schools. Apparently, there is no characteristic phenotype of males with the 47,XYY complement. (10 refs.) - *V. G. Votano.*

Western General Hospital
Edinburgh 4, Scotland

324 VALENTINE, G. H. The YY chromosome complement: What does it mean? *Clinical Pediatrics*, 8(6):350-355, 1969.

Although an association between the XYY chromosome complement and tall stature, delinquent behavior, and MR has been reported among institutionalized MR individuals and criminals, it is quite probable that many normal and respectable citizens who have an XYY karyotype are present in our midst. The moral and legal questions raised by this disorder are extremely difficult to answer. Four babies with the XYY chromosome complement (the oldest 20 mos at the time of this report) have had normal growth, development, and personalities. The incidence of this abnormality among neonates needs further elucidation. (19 refs.) - *L. S. Ho.*

University of Western Ontario
London, Ontario, Canada

325 CONEN, P. E.; HAMPOLE, M. K.; & THOMSON, H. G. Chromosome abnormalities in patients with syndactyly. *Canadian Medical Association Journal*, 101(10):75-78, 1969.

Chromosome studies on 105 patients with syndactyly included 2 trisomy-21 mongoloids, a chromatin-positive boy with 47,XXY, a chromatin-negative short girl with 45,XO, and a boy with a familial D/D translocation. Chromosome patterns were normal in the other cases which included 3 patients with acrocephalosyndactyly and one patient with orofacial-digital syndrome. The incidence of chromosome abnormalities was greater than expected since syndactyly of the fingers is uncommon in the chromosome disorders. This incidence may be related to the increased maternal age (mean: 29.4 yrs) of the syndactyly group compared to maternal age (mean: 26.64 yrs) of the control group although, paradoxically, 4 mothers of the 5 patients with chromosome abnormalities were young. (25 refs.) *Journal summary*.

Hospital for Sick Children
Toronto, Ontario, Canada

326 STEWART, ANN L.; KEAY, A. J.; JACOBS, PATRICIA A.; & MELVILLE, MARIE M. A chromosome survey of unselected live-born children with congenital abnormalities. *Journal of Pediatrics*, 74(3):449-458, 1969.

Of 2,500 consecutive, live-born infants examined clinically and chromosomally, 184 (7.4%) had congenital malformations; 8 of these (4.3%) had abnormal karyotypes which included 3 with an abnormal nuclear sex, 3 with mongolism, and 2 with reciprocal translocations. Three infants who had no apparent physical abnormalities were found to have abnormal nuclear sex. The 6 infants with abnormal sex chromosomes included 3 chromatic-positive males with 47,XXY chromosome

complements, one male with a 46,XX karyotype, one chromatin-negative female with a 45,X/46, XXr ring chromosome complement, and one female with 2 sex chromatin bodies (47,XXX). Correlations between chromosomal abnormalities and congenital malformations are not clear in most cases; Down's syndrome is probably the only chromosomal syndrome with well recognized clinical manifestations. There may be an increased risk of unbalanced translocations occurring in offspring of Ss with balanced translocations; however, this needs further elucidation. (6 refs.) - *L. S. Ho.*

Wolfson House (University College London)
London, N.W. 1, England

327 POLANI, P. E.; & POLANI, N. Chromosome anomalies, mosaicism and dermatoglyphic asymmetry. *Annals of Human Genetics*, 32(4): 391-402, 1969.

The dermatoglyphic differences of right minus left hand (maximal *atd* angle and finger-ridge count) were more variable in mosaics than in normal controls, while those of non-mosaic chromosomally abnormal Ss were more variable than normal but less variable than that of mosaics. The variability of the total values (right plus left) of these 2 dermatoglyphic traits in mosaics was closer to normal than that in the non-mosaics. These data were obtained from 161 non-mosaic mongoloids, 27 mosaic mongoloids, 57 women with 45,X (non-mosaic), 16 women who were sex-chromosome mosaics (a 45,X cell line and a presumptive isochromosome for the long arm of the X in the other cell line), and 110 normal Ss. The increasing asymmetry, as shown by the difference between right and left hand in mosaic Ss, may be caused directly by an uneven distribution of their 2 cell lines. (20 refs.) *L. S. Ho.*

Guy's Hospital Medical School
London, S.E. 1, England

328 MIKAMO, K. Sex chromosomal anomalies in newborn infants: A 3-year survey of fetal membranes. *Obstetrics and Gynecology*, 32(5):688-699, 1968.

In a survey of fetal membranes from 8,184 infants examined over a 3-year period, 11 sex chromosomal anomalies were found (6 cases of 47/XXY, 3 of 47/XXX, one of 45/XO+47/XXX, and one 45/XO+46/Xx?). This gives an annual incidence of sex chromosomal anomalies of 0.116%. In addition, 4 chromosomally normal males were born who had exceptionally mosaic membranes. The amnion has advantages in screening for female sex chromosome anomalies, while male anomalies are best found through buccal smears. Sex chromosome anomalies occurred more frequently in the population fertilized from October to February, while the incidence is lowest in those fertilized from May to August. No relation between high maternal age and chromosomal anomalies was found in these neonates, nor was there a relation between the occurrence of epidemic diseases and anomalies. Intrafollicular overripeness of ova with subsequent chromosomal aberrations is known to occur in rats, and seasonal environmental changes might change the time of release of luteinizing hormone in human females, thus causing overripeness of human ova. (34 refs.) - *V. G. Votano.*

University of Geneva
Geneva, Switzerland

329 SMITH, MOYRA; MACNAB, JOAN; & FERGUSON-SMITH, M. A. Cell culture technics for cytogenetic investigation of human abortus material: Analysis of 45 cases and report of 3 specimens with gross chromosomal aberrations. *Obstetrics and Gynecology*, 33(3):313-323, 1969.

Cell cultures were attempted for 45 specimens of abortus material, and 20 specimens were successfully cultured. Of these, 3 were found to have chromosomal aberrations (45/XO, XO/XX mosaicism, and XXY). The cell culturing methods included cultivation of tissue explants in air-tight bottles, mass trypsinization and growth on coverslips, and cultivation of tissue explants on coverslips. The cultivation of tissue explants in air-tight bottles was found to be suitable for growth of fetal or embryonic tissue (of 22 specimens cultured, 18 grew, and 16 produced cells suitable for chromosome studies). This method was less suitable for chorion and amnion cultures. In the mass trypsinization method, growth occurred after 2 to 3 weeks; however, none of the cells could be used for chromosome studies. The last method was the most useful for cultivation of trophoblastic tissue for the purpose of chromosomal studies (of 10 specimens cultured, 9 grew, and 4 produced cells which could be used for chromosome analysis). Because early regression of cell growth is the main difficulty encountered in trophoblast cell culturing, large numbers of explants should be used, and the primary outgrowth should be used for chromosomal examination. (19 refs.) - *L. S. Ho.*

Post Office Box 11226
Lynnwood, Pretoria, South Africa

330 ROBERTS, D. F. Consanguineous marriages and calculation of the genetic load. *Annals of Human Genetics*, 32(4):407-410,1969.

Based on the inbreeding coefficient of consanguineous marriages among the population of Tristan da Cunha, the lethal equivalent of the Kerala population (Kumar, Pai, and Swaminathan) was revised to be between 3 1/2 and 4 1/2/gamete (a genetic load between 7 and 9/zygote). The inbreeding coefficient had been calculated previously by including relationships up to approximately second cousin only and by ignoring the contribution of more remote components of consanguinity. Thus, the lethal equivalent of the Kerala population had been estimated at 6-8/zygote. (6 refs.) *L. S. Ho.*

University of Newcastle upon Tyne
Newcastle upon Tyne, England

331 CARTER, C. O. An ABC of medical genetics. II.--Chromosomes and chromosome mutations. *Lancet*, 1(7604):1041-1045, 1969.

Chromosomal anomalies are caused either by errors in meiosis as in Turner's syndrome (45,XO) and Down's syndrome (47,XY,G+) or by breakage and translocation of one or more chromosomes as in the case of a woman with a translocated D/G chromosome (45,XX,D-,G-,t [DqGq]+). Chromosome anomalies occur frequently; 50% of spontaneous abortions and 1% of live-born infants possess a chromosome anomaly. The most common anomalies among abortuses are triploidy, trisomy 16, and the XO genotype. Among live-born infants, the most common chromosomal anomalies are trisomies of the sex chromosomes; these include XXX (1/1,000 female births), XXY (2/1,000 male births), and XYY (about 0.5/1,000 male births). Intelligence is often reduced in Ss with sex chromosome anomalies. The most common autosomal anomalies in live-born infants are trisomy-G (1.8/1,000 births), trisomy-E (0.5/1,000 births), and trisomy-D (0.1/1,000 births). There is no conclusive evidence that virus infection, autoantibodies, drugs, radiation, or other external agents are responsible for nondisjunction during meiosis. A method for screening for chromosome anomalies *in utero* is now available. This method involves suprapubic aspiration of amniotic fluid at 14 weeks after conception and culture of the epithelial cells. The number of seriously abnormal children could be reduced if chromosomally defective fetuses determined by this procedure were medically aborted. (14 refs.) - *L. S. Ho.*

No address

332 CARTER, C. O. An ABC of medical genetics. IV.--Mutant genes of large effect: Family patterns of disease due to mutant genes of large effect. *Lancet*, 1(7606):1139-1141, 1969.

Disease due to mutant genes of large effect can be divided into dominant, recessive, and X-linked. There are no verified conditions which are Y-linked. The family pattern in dominant inheritance is that the first case is sporadic (a new mutation) with normal parents and sibs. Thereafter, there is a 1-in-2 risk to offspring of the affected S. The number of generations that a dominant gene will persist depends upon the number of offspring of affected persons plus the influence of the 1-in-2 risk. Some dominant genes also have incomplete penetrance; that is, not all heterozygotes are affected to the same degree. In recessive inheritance, sibs of index patients may be affected in a 1-in-4 ratio. Usually, offspring of an affected patient will not be affected. In addition, in recessive conditions, when a family pedigree is constructed, there is a good probability that consanguinity will be found even though the parents may not even know this. In X-linked conditions, there is a 1-in-2 risk of disease in sons of heterozygous women and a 1-in-2 risk of her daughters being heterozygotes. If an affected male survives, all of his daughters will be heterozygotes, but none of his sons will transmit the disorder. Homozygous girls for an X-linked characteristic will be clinically affected, and all sons of such girls will have the disorder. It has been suggested that the polypeptide products of dominant genes involve structural proteins while those of recessive genes involve enzymes. (21 refs.) - *M. Drosman.*

No address

333 BRUES, ALICE M. Genetic load and its varieties. *Science*, 164(3884):1130-1136, 1969.

The term genetic load has been used to describe different types of situations including the mutational load (a result of actual deterioration of the genetic material), the segregational load (in which there are clearly identifiable genetic deaths, but the overall effect on the population is beneficial), and the substitutional load (definitely beneficial). A characteristic common to all these situations is that the populations are polymorphic with respect to viability. Viability polymorphism, therefore, is a suitable term to replace the term genetic load for

conditions other than mutational load. This would eliminate some of the confusion and controversy surrounding the term genetic load. (25 refs.) - *L. S. Ho.*

University of Colorado
Boulder, Colorado 80304

334 WRIGHT, S. W. The association of chromosomal alterations and congenital malformations. *Journal of Pediatrics*, 74(3): 490-491, 1969. (Editorial)

Seven infants with chromosomal changes were found among 2,400 phenotypically normal infants (a frequency of 0.3%). Three of these infants had an extra small metacentric chromosome. In another study of 184 neonates with minor or major congenital abnormalities, 5 had associated chromosomal abnormalities. It seems obvious that significant chromosome variations can occur without causing congenital malformations; therefore, much additional data will be needed to determine the exact degree of relationship between chromosomal aberrations and deformities at birth. It would also appear that balanced translocation carriers might be at risk for the occurrence of malformations in their offspring; however, this relationship also needs more investigation. (No refs.) - *L. S. Ho.*

No address

335 WORLD HEALTH ORGANIZATION. *Genetic Counselling: Third Report.* (World Health Organization Technical Report Series Number 416). Geneva, Switzerland, 1969, 24 p. $0.60.

Recent advances in electrophoresis, gel filtration, and chromatography make it possible to identify the basic genetic abnormalities in a number of diseases and inborn errors of metabolism. Because at least 4% of all live-born infants are suffering from genetic or partly genetic conditions, some countries are setting up community centers for family health and genetic counseling. These centers are staffed by physicians, geneticists, technicians, nurses, and social workers. In the United States, states are beginning to set up genetic counseling programs under the aegis of maternal and child health services; however, these programs usually develop as units within hospitals and medical faculties. Among recommendations made by the World Health Organization are: genetic counseling centers should be organized in areas where infectious diseases and nutrition disorders are being brought under control; an international register of human chromosome anomalies should be available for physicians; and genetic counseling services and laboratory costs should be covered by health insurance. (No refs.) *C. L. Pranitch.*

CONTENTS: Recent Developments; Types of Case Requiring Genetic Counsel; Genetic Counseling Services; Role of General Practitioners; Education of the Public; Consequences of Genetic Counseling; Recommendations.

336 NIELSEN, J.; FRIEDRICH. U.; & TSUBOI, T. Chromosome abnormalities in patients treated with chlorpromazine, perphenazine, and lysergide. *British Medical Journal*, 3 (5671):634-636, 1969.

In a chromosome study on leukocyte cultures made in 13 patients treated with chlorpromazine, 15 treated with perphenazine, and 9 treated with lysergide, a significantly higher frequency of gaps, breaks, and hypodiploid cells in the patients treated with perphenazine and lysergide occurred compared with the 41 controls studied. It is concluded that if some drugs can induce major chromosome abnormalities, and less toxic alternatives are available, the latter should be used in preference. (14 refs.) - *Journal summary.*

Arhus State Hospital
Risskov, Denmark

337 STONE, D.; LAMSON, E.; CHANG, Y. S.; & PICKERING, K. W. Cytogenetic effects of cyclamates on human cells *in vitro*. *Science*, 164(3879):568-569, 1969.

Chromosome studies on human cells *in vitro* have shown that the artificial sweeteners, sodium and calcium cyclamate, can induce chromosome breaks *in vitro* in human cells, in both leukocyte and monolayer cultures. (15 refs.) - *Journal abstract.*

Worcester Foundation for Experimental Biology
Shrewsbury, Massachusetts

338 CARR, D. H. Cytogenetics and pathology of hydatidiform degeneration. *Obstetrics and Gynecology*, 33(3):333-342, 1969.

Of 13 abortuses with visible cystic chorionic villi, 9 showed triploidy (69,XYY) and one showed tetraploidy (92,XXXX) on chromosomal analysis. Six of the specimens were from women who had discontinued oral contraceptives shortly before conception. Varying degrees of hydropic change, hydatidiform degeneration of chorionic villi, and true mole tissue were found in the specimens. Hormone imbalance resulting from oral contraceptive discontinuation may interfere with the shedding of the second polar body and thus affect the development of chorionic villi and chromosomal complement of the conceptus. (28 refs.) *L. S. Ho.*

McMaster University
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MEDICAL ASPECTS--MISCELLANY

339 MEIER, GILBERT W. Mental retardation in animals. In: Ellis, Norman R., ed. *International Review of Research in Mental Retardation: Volume 4*. New York, New York, Academic Press, 1970, p. 263-309.

Research on MR in animals focuses on genetic, prenatal, perinatal, and postnatal factors and on multivariate analysis. The use of multivariate orientation in comparative research in MR is a recent innovation with limited data available. The lack of a conceptual model of MR has slowed effective animal experimentation. The use of recognized breeds or strains of animals is a recent trend in genetic research in animals. Most of the data on prenatal influence factors were collected on rats and show a close relation between the life of the fetus and that of the mother. Extrauterine and extramaternal environments affect the fetus. Perinatal factors, such as hypoxia and mode of delivery, have been studied in animals; however, the complexity of species and definition of behavior deficits in learning make it difficult to apply the findings to humans. Animal studies on hyperoxia (a postnatal factor) show a possible relation to behavioral defects. In experiments on brain damage in animals, decrements seem to be task and modality specific with no generalized learning deficits. Extensive neonatal cortical damage outside the primary sensory and motor areas has a "minimal effect as compared with similar adult damage on the acquisition of a maze solution, a non-specific task." Developmental psycho-pharmacological research is still in early stages. (211 refs.) - *B. Bradley.*

340 EASTHAM, R. D.; & JANCAR, J. Serum cholesterol in mental retardation. *British Journal of Psychiatry*, 155(526):1013-1017, 1969.

Serum cholesterol levels of 1,468 MRs (799 males and 669 females) were lower than that of normal Ss of comparable ages; however, no correlation was found between the cholesterol value and IQ, systolic or diastolic pressure, drugs, nor epilepsy. Patients with Down's syndrome and phenylketonuria had values within the range of the other MR patients. No hyperthyroidism was found among the patients examined. Perhaps there is less stress in the sheltered environment of a hospital, and this results in lower serum cholesterol levels in MRs. (12 refs.) - *L. S. Ho.*

Frenchay/Cossham Group of Hospitals
Bristol, England

341 BERTELLI, ALDO; & DONATI, LUIGI, eds. *Teratology*. Amsterdam, Netherlands, Excerpta Medica Foundation, 1969, 240 p. $15.00.

Comprehensive surveys from contributors from 15 countries on teratogenic research are compiled and attest to the growing awareness of man's ability to intervene in the normal processes of embryogenesis. Abnormal embryonic development is now known to be caused

by radiation, viruses, and chemical substances, and vitamin deficiencies and hormonal metabolism possibly can be implicated as further factors. Embryogenetic disorders are no longer of interest to only a few research workers, but present a problem to health and legal authorities throughout the world. The papers collected in this book have attempted to delineate those factors which threaten real danger to the unborn child by citing results of experimental teratology studies in animals and by examples of congenital malformations in man known to be connected with a teratogenic agent. Biochemical aspects of teratogenesis are explored in detail, with emphasis on experiments using rats and chicks. The study and prevention of malformations and teratogenic conditions are serious medical problems deserving of greater multidisciplinary research and study. This book should be of interest to embryologists, geneticists, pharmacologists, and biochemists. (459 refs.) *M. G. Conant.*

CONTENTS: Teratogenic Activity Tests; Teratogenic Action of Pharmaceutical and Chemical Agents; Biochemical Mechanisms of Teratogenesis; Congenital Malformations.

342 GEDDA, L.; & DEL PORTO, G. The significance of discordant malformations in monozygotic twins. In: Bertelli, Aldo; & Donati, Luigi, eds. *Teratology*. Amsterdam, Netherlands, Excerpta Medica Foundation, 1969, p. 189-204.

When a monozygotic twin pair is, at birth, discordant with respect to a malformation, that malformation was probably caused by an exogenous agent (not hereditary) and was paragenetic (due to exogenous paratypical causes acting on the fetus in a direct or indirect way during pregnancy). Such twin pairs are of great value in the study of human teratology, since they may confirm data obtained by experimental teratology in animals and may lead to the discovery of as yet unknown paragenetic teratogenic agents. Seven monozygotic twin pairs, in which one twin was afflicted with a malformation (congenital heart disease, torticollis, subtotal aplasia of upper limbs, angioma planum of the left side of the face, Little's disease, sarcoma, or facial asymmetry) are described to stress the importance of paragenesis in the study of teratology. (17 refs.) - *M. G. Conant.*

343 KONSTANTINOVA, BLAGA; & KASSABOV, LATCHEZAR. Rare congenital malformations. In: Bertelli, Aldo; & Donati, Luigi, eds. *Teratology*. Amsterdam, Netherlands, Excerpta Medica Foundation, 1969, p. 223-227.

Two cases of rare anomalies in the head region are reported; in the first case, a male full-term infant showed exencephaly with aplasia of the corpus callosum, cerebellum, and middle and internal ears, and anomalies of other organs. There were malformations of the face, external and internal genital organs, kidneys, and lungs. The second infant was a female of 6 months' gestation with iniencephaly and cyclopia, aplasia of the upper left limb, malformations of the heart and spleen, and complete exomphalos of the abdominal organs. In this case, there was adhesion between the embryo and trophoblast during early stages of development. These 2 cases are considered to be due to exogenous factors, and the teratogenic agent was operative from the beginning of pregnancy. (1 ref.) - *M. G. Conant.*

344 GIORDANO, A. Human pathology and experimental teratology. In: Bertelli, Aldo; & Donati, Luigi, eds. *Teratology*. Amsterdam, Netherlands, Excerpta Medica Foundation, 1969, p. 204-210.

Of 13,176 necropsies, 2,976 were on infants less than one year of age, and 650 (21.8%) of these were malformed. Defects of the cardiovascular system were most common. Malformations of the cardiac, digestive, and central nervous systems (CNS) were preponderant in females, while males showed more malformations of the urinary tract. Statistical analysis of cases with associated malformations showed that cardiac malformations are most frequently accompanied by digestive tract malformations, then by urinary tract and skeletal malformations. Urinary tract malformations are most frequently associated with digestive tract, CNS, and skeletal malformations and CNS malformations are most often associated with skeletal, respiratory, and digestive tract malformations. (1 ref.) *M. G. Conant.*

345 HANAWAY, J. K. Lysergic acid diethylamide: Effects on the developing mouse lens. *Science*, 164(3879):574-575, 1969.

High doses ($6X10^{-6}$ g) of LSD-25 given to Swiss-Webster females on gestation days 6,

7, 8, or 9 caused a high incidence of anterior subcapsular lens abnormalities. Accompanying this, the lens epithelium was often hyperplastic, and the lens bow was widened posteriorly in a fashion similar to cataracts induced by X-radiation. Confirmation of this effect of LSD-25 was obtained by a (duplicate) experiment one year after the observations reported. (8 refs.) - *Journal abstract.*

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346 MORGAN, E. A. Crib deaths. *Canadian Medical Association Journal*, 100(20): 968-969, 1969. (Letter)

A carotid sinus hypersensitivity is postulated as the etiology of crib death. There is a similarity between such deaths and blackouts following hyperextension of the neck in adults. Anecdotally, infants who die suddenly and unexpectedly have been "white" (non-cyanotic) and lying on their faces. Autopsy findings are inconclusive. ECG tracings of infants showing much variation in sinus susceptibility to pressure would support this theory. (No refs.) - *E. L. Rowan.*

170 St. George Street
Toronto 5, Ontario, Canada

347 Sudden death in infancy. *Canadian Medical Association Journal*, 100(20):965-967, 1969. (Editorial)

Sudden, unexpected deaths in infancy (so-called crib deaths) have become an important cause of infant mortality as other causes of death have declined. There are probably multiple mechanisms, but the most probable is asphyxia. Simple suffocation is uncommon, but sudden airway blockage, such as laryngospasm in respiratory infection or simple nasal obstruction, could occur. Hypogammaglobulinemia, anaphylaxis, and epidural hemorrhage of the spinal cord have also been seen in these infants. If the etiology could be determined, the prospects of prevention might improve considerably. (34 refs.) *E. L. Rowan.*

348 BASFORD, ALICE B.; & FINK, B. RAYMOND. The teratogenicity of halothane in the rat. *Anesthesiology*, 29(6):1167-1173, 1968.

In a study on pregnant rats, halothane as a general anesthestic was found to cause anomalies of the skeletal system. The 2 anomalies most frequently found were lumbar ribs or rib rudiments and separate or only partially fused lateral ossification centers in the thoracic vetebrae. Approximately 100 fetuses in each of 18 groups (9 experimental and 9 control) were examined for weight, length, sex, and gross appearance. Their mothers had been exposed (in the experimental group) to 0.8% halothane in 25% oxygen-nitrogen for 12 hours on days 6, 7, 8, 9, or 10 of gestation. The incidence of anomalies after exposure to halothane was greater in all treating periods from day 7 to day 9 1/2, and there were χ^2 significant differences on days 8 and 9 1/2. The peak incidence was on day 9 1/2 (significance level $P < 0.001$). Since abnormalities found after halothane exposure in rats are similar to those which occur after nitrous oxide exposure, teratogenicity may be a general property of anesthetics. General anesthesia, therefore, of women in early pregnancy should be done with extreme caution. (17 refs.) - *M. Drossman.*

University of Washington School of Medicine
Seattle, Washington

DEVELOPMENTAL ASPECTS--PHYSICAL

349 SINCLAIR, JOHN C.; & COLDIRON, JOHN S. Low birthweight and postnatal physical development. *Developmental Medicine and Child Neurology*, 11(3):314-329, 1969.

The relation between low birth-weight and subsequent growth retardation is unclear, and part of the problem lies in the differentiation between infants whose low birth-weight is due to short gestation and those in whom it is due primarily to a retarded rate of fetal growth. Although the latter may have a neonatal growth spurt, they probably do not attain full growth potential. Animal studies have shown that growth proceeds first by cell proliferation and then by cell enlargement. Insults during the early period (at least through the first year of life in man) may result in permanent growth retardation. Defects may reside in the fetus (chromosomal aberration, infection, or radiation), placenta (hypoxia), or mother (drugs, undernutrition, or hormonal changes). Any of these insults may cause a deficit in cell number and thus permanent damage. A careful search for these deleterious influences must be made when confronted with a low birth-weight infant. At present, only late nutritional deficiencies appear reversible, but the full potential of growth hormone in cell proliferation has yet to be explored. (87 refs.) *E. L. Rowan.*

College of Physicians and Surgeons
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New York, New York 10032

350 BEALS, RODNEY K. Developmental changes in the femur and acetabulum in spastic paraplegia and diplegia. *Developmental Medicine and Child Neurology*, 11(3):303-313, 1969.

Radiographs of 40 patients with paraplegia and diplegia indicated that the angle of inclination was usually normal, that the antiversion was markedly increased, and that the acetabular index was related to the years of ambulation. Acetabular index, which is an indicator of acetabular cover of the femoral head, is the angle formed by Hilgenreiner's line and a line drawn between the intersection of Hilgenreiner's line and the acetabulum to the outmost acetabular ossification. The index failed to decrease until 8 years of age when all except one patient became ambulatory. A close correlation was found between the acetabular index and subluxation which is the percentage of the femoral head which lies lateral to the radiographic margin of the acetabulum. Neither the angle of inclination nor antiversion correlated with subluxation until 40% or more of the femoral head was displaced beyond the bony acetabulum. The failure of the acetabular index to decrease with age in spastic children is mainly related to their failure to ambulate. Preambulatory use of standing plasters or braces may be beneficial to acetabular development and helpful to retain its capacity for development well into childhood if weight-bearing occurs. (30 refs.) - *L. S. Ho.*

University of Oregon Medical School
Portland, Oregon 97201

351 WOLFF, PETER H. The role of biological rhythms in early physiological development. *Bulletin of the Menninger Clinic*, 31 (4):197-218, 1967.

Some reflex activities (crying and sucking) of neonates are organized in remarkably stable, high frequency rhythms. Evidence indicates that the central nervous system instigates motor rhythms analogous to those described for lower species and that the influence of these rhythms is not limited to the motor end organ alone but can influence anatomically unrelated motor activities as well. Comparative study of normal and brain-damaged Ss indicated that a regression in neurologic function is associated with the re-emergence of simple motor rhythms and mannerisms. Mannerisms of mongoloid Ss suggest that rhythmical repetition may function not only as a consummatory behavior but also as the motor means by which the MR child explores his surroundings. (33 refs.) *A. Huffer.*

No address

352 SINGER, JUDITH E.; WESTPHAL, MILTON; & NISWANDER, KENNETH R. Sex differences in the incidence of neonatal abnormalities and abnormal performance in early childhood. *Child Development*, 39(1):103-112, 1968.

Infants followed from birth to 4 years of age were evaluated physically, psychologically, and neurologically for sex differences. Although males had a higher average birthweight, their performance on all measuring devices was lower than that of the females. Obstetrical problems, neonatal stress, and maternal attitudes may have a mediating effect. (29 refs.) - *A. Clevenger.*

No address

353 PATTULLO, ANN. *Puberty in the girl who is retarded.* New York, New York, National Association for Retarded Children, 1969, 37 p. $1.00.

The standards of behavior of the MR girl entering puberty will be greatly influenced by the actions she sees practiced within her family. One must be calm and accepting in order to teach the MR preteen female that menstruation is a normal physiological function. The SMR will require more supervision, and instructions must be specific and, at times, repeated frequently. The MR in puberty have a need, as do all girls, to feel proud and experience independent behavior. The MR adolescent girl should be informed as to where she can obtain help, care, supervision, and instructions in menstrual hygiene. In addition to the mother and/or older sisters, the school nurse, public health nurse, the family physician and specialists in the field of MR can be consulted. This booklet, augmented by a list of pertinent definitions, is designed to help mothers of MR girls cope with some of the problems presented by puberty. (No refs.) - *S. Half.*

CONTENTS: What is Happening? When Will My Daughter Menstruate? How Can I Help My Daughter? What Sexual Behavior Might I Expect? What about Heterosexual Behavior? Should My Daughter Marry? How Do I Teach My Daughter What She Needs to Know in Puberty? How Do I Protect My Daughter from Sexual Aggression? Can My Daughter Learn to Care for Herself? Where Can I Go for Help?

354 LLOYD, LYLE L. Audiologic aspects of mental retardation. In: Ellis, Norman R., ed. *International Review of Research in Mental Retardation: Volume 4*, New York, New York, Academic Press, 1970, p. 311-374.

Audiologic aspects of MR were analyzed and presented in chronological order in terms of research relating to the incidence of hearing impairment, assessment procedures, reliability studies, and rehabilitation. Data from numerous studies show a higher incidence of hearing impairment among MR populations than among non-retardates of the same CA; also, there appear to be more conductive impairments and congenital middle ear anomalies. Methodological and inter-method research has involved the employment of puretone audiometry, behavior observation audiometry, speech audiometry and other special procedures. The audiologist is able to provide data for the "differential diagnoses of site of lesion and pseudohypacusis" by employing special audiometric methods. Although MR persons appear able to respond to behavioral audiometry, some examiners rely on electrophysiological or neurophysiological audiometry. Speech audiometry is reported as critical, but there has been minimal research conducted with the MR. Aural rehabilitation of the hearing impaired MR is a major need. Research relating to the reliability of many audiological procedures for the MR shows that there is considerable reliability, but additional research is needed since most of the methodlogical studies used puretone stimuli rather than speech audiometry. An effective audiology program should be well-organized and include comprehensive diagnostic and rehabilitative services. (245 refs.)
B. Bradley

DEVELOPMENTAL ASPECTS--MENTAL

355 NETLEY, C. Learning and subnormal intelligence. *Deficience Mentale/Mental Retardation*, 19(3):7-8, 1969.

Modification of educational approaches and techniques could lead to an improvement in the functional capacities of the MR if specific factors that determine their slowness to begin to learn could be ascertained. Experiments indicate that transfer does occur in the MR and is greatest if the initially learned task is complex. The child's capacity for learning and transfer is facilitated by complex, stimulating, and enriching experiences. (No refs.) - *S. Half.*

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356 FISCHER-WILLIAMS, M. The neurological aspects of "mental" subnormality. *Journal of Mental Subnormality*, 15, Part 1(28): 21-36, 1969.

One hundred and eleven unselected hospitalized patients with MR (CA 5-49 yrs; IQ <85) were studied clinically, and symptoms and signs of neurological pathology were analyzed. Abnormal gait was present in 40 of 56 children and 21 of 34 adults over 16 years of age; a pathological fear response was present in 1 of every 4; hyperphagia, omniphagia, food fads, and lack of discrimination between edible and non-edible material was noted in 1/3 of the cases; and a lack of normal cerebral dominance was observed in 72% of the 53 Ss for whom handedness was verified. The MR Ss were characteristically stimulus-bound, showed pathologically constant responses because of lack of central excitatory state, and showed perseveration which may be due to lack of the mechanism for short-term changes in responsiveness. Spontaneity and the mechanism for removing redundancy were missing in these individuals, as well as an apparent lack of chain events. (No refs.) *M. G. Conant.*

Marshfield Clinic
Marshfield, Wisconsin 54449

357 McMANIS, DONALD L. Conservation of identity and equivalence of quantity by retardates. *Journal of Genetic Psychology*, 115(1):63-69, 1969.

An experimental test of Piaget's theory of conservation supported an alternate hypothesis that 2 forms of conservation ("conservation of identity" and "conservation of equivalence") develop nonsimultaneously and that identity conservation is necessary for, and may precede in time, equivalence conservation. Identity conservation was assessed through the transformation of a single stimulus; equivalence conservation was assessed through the transformation of 1 of 2 equated stimuli. Fifteen MR Ss in each of 4 MA ranges (5 to 8) matched for IQ across groups were scored as nonconserving if the S denied that the transformed variable differed in quantity from its original state, or if the S denied the equality of the standard and the transformed variables. All Ss were tested for both forms of conservation with styrofoam balls, clay, and water in a balanced presentation of materials and tests. Discrepancies in conservation were always the presence of identity conservation without equivalence conservation (binomial $p<.01$) and were observed most frequently in the 6-year MA group. (2 refs.) *D. F. McGrevy.*

Parsons State Hospital and Training Center
Parsons, Kansas 67357

358 GRODEN, GERALD. Relationships between intelligence, simple, and complex motor proficiency. *American Journal on Mental Deficiency*, 74(3):373-375, 1969.

Substantial relationships were found between intellectual and motor proficiency in tests administered to 54 outpatient children of a MR facility. Furthermore, it was found that a sizeable relationship between scores on the intellectual and complex motor proficiency tests remained after possible influences of

purely motor disabilities as reflected by relatively simple motor tests were controlled. (12 refs.) - *Journal abstract.*

Child Development Center
593 Eddy Street
Providence, Rhode Island

359 STOCH, N. B.; & SMYTHE, P. M. The effect of under nutrition during infancy on subsequent brain growth and intellectual development. *South African Medical Journal*, 41(41):1027-1030, 1967.

Twenty undernourished infants were matched for CA, sex, and socioeconomic level with a control group to determine the effect of undernutrition on brain size and intellectual performance over an 11-year period. Height, weight, and head circumference were measured each year, and IQ was measured every other year. Average head size, weight, and height of the undernourished group were significantly less than those of controls. There was a significant difference between level of intelligence and educational placement with the experimental group lagging far behind. (8 refs.) - *A. Huffer.*

No address

360 JENSEN, ARTHUR R. Intelligence, learning ability and socioeconomic status. *Journal of Special Education*, 3(1):23-35, 1969.

Although so called "culturally disadvantaged" children of low socioeconomic status (SES) perform less adequately on standard tests of intelligence than do middle-class children, they may appear much brighter in certain learning tasks. When a group of low SES children with IQ range 60-80 was compared with high SES children of the same intelligence, the former was superior on tests of associative learning ability (free recall, serial learning, paired-associative learning, and digit span). A 2-level model of mental ability is postulated to explain this phenomenon. Level I abilities (associative learning skills) appear to be equally distributed among all SES classes and are essential but not sufficient for the acquisition of Level II abilities (conceptual thinking skills) which are associated with a higher SES, have a high hereditability factor, and may be composed of an acquired set of cognitive abilities. Since low SES individuals can perform quite adequately outside the classroom, the challenge to education is the development of methods to measure and build upon this kind of intelligence. (27 refs.) - *E. L. Rowan.*

University of California
Berkeley, California 94721

361 PROSSER, E. JANE; MURPHY, E. G.; & *THOMPSON, MARGARET W. Intelligence and the gene for Duchenne muscular dystrophy. *Archives of Disease in Childhood*, 44(234): 221-230, 1969.

A group of 47 males with Duchenne muscular dystrophy (DMD) and members of their families were evaluated with standard intelligence tests (Wechsler Adult Intelligence Scale, Wechsler Intelligence Scale for Children, and Stanford-Binet) in order to determine if MR is associated with DMD. DMD is an X-linked progressive myopathy, and carrier females can be identified by pedigree patterns and elevated serum creatine kinase. The mean IQ of the DMD group was 87.5 with 31% scoring <80. Within families, the boys with DMD scored significantly lower than did unaffected sibs. Low socioeconomic status was associated with a low intelligence score in all members of a family regardless of DMD. Intellectual impairment in the DMD group was uniform (no differences between verbal and performance scores or subtest scores) and non-progressive even though muscle weakness continued to increase. There was no evidence of intellectual impairment in heterozygous females, even in those with elevated creatine kinase or minor muscle weakness. It appears that the defective gene in DMD has a pleiotropic effect and affects the central nervous system during a critical period of development. (44 refs.) *E. L. Rowan.*

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362 MOOR, L. Intelligence et facteurs specifiques dans le syndrome de Turner: Aberration gonosomique comportant la perte de la totalite ou d'une partie d'un chromosome X (Intelligence and specific factors in Turner's syndrome: Chromosome aberration involving total or partial loss of an X chromosome). *Revue de Neuropsychiatrie Infantile et d'Hygiene Mentale de l'Enfance*, 17(8):545-556, 1969.

A review of the studies done on individuals with any of the karyotypes associated with Turner's syndrome reveals that MR is not a

common feature, although there is more borderline function than is found in the general population. Among individuals with 45X karyotype a number of investigators obtained mean IQs of 95 to 96.9 on the Wechsler-Bellevue. Test results in Sweden, the United States, and the Netherlands gave IQ ranges of 55-131. IQs of 120 and above were not unusual. While one investigator observed higher incidence at IQ 80-89 and 100-109 another observed peaks at IQs of 70-79 and 100-109. Other investigators have noted that 34% to 42% of the Ss have IQs < 90 as compared with 25% in the general population. Others have noted discrepancies between the verbal and performance scores with a disability in right-left orientation, spatial perception, and organization. Since these discrepancies have been observed in small populations, further study is indicated before the results can be considered positive. Although there was less definitive information in most of the studies done on 46XXqi, 46XXpi and 46XXq-, the trend appeared similar with IQ ranges of 60-109. Since testing was sporadic in many of these latter types, it is not possible to draw valid conclusions, however. The most systematic studies show a significant incidence of borderline function greater than seen in the general population and point to a need for further investigation of larger numbers of affected individuals. (62 refs.)
C. A. Rizvi.

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363 KAUFMANN, INGE. Hilfsschulkinder erzaehlen eine Sage weiter (MR children retell a fairy tale). *Zeitschrift fuer Heilpaedagogik*, 18(7):396-408, 1967.

A modified method of serial reproduction was utilized to compare 97 MRs (CA 10 to 14 yrs) with a control group of normal students. The same basic characteristics and tendencies of loss, restructuring, and new structuring of material as well as loss of emotional compactness and intensity were exhibited by both groups. MRs forgot more material and generated less spontaneity upon loss of material than did the normal group. Ten to 12 year old MRs (approximating younger, normal students) differed from 12 to 14 year old MRs in reproduction of material. The colloquial speech of MRs increased markedly, although it was accompanied by signs of a smaller vocabulary than that of normal students. Finally, the MRs were less sure of the faithfulness of their reproductions to the original material than were the normals. (13 refs.)
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364 BASKAKOVA, I. L. K voprosu ob sobennostyakh ustoichivosti vnimaniya umstvenno otstalykh podrostkov (Peculiarities of the attention span of MR juveniles). *Spetsial'naya Shkola*, 5(131):127-130, 1968.

The attention span of MR children varies with age and education as revealed in a study of two groups (20 Ss each) of EMRs from grades 5 (mean CA 13 yrs) and 8 (mean CA 16 yrs) in a remedial school and 2 groups (20 Ss each) from grades 5 and 8 in a normal school. The test consisted of underlining all *s*'s and *b*'s in Burton's alphabetic series during a 10-minute period. At the end of each minute, the proctor gave a signal, and each S drew a vertical line to show how far he had progressed in the series. Errors were counted if the letters were passed over, wrong letters were chosen, or the line was not drawn. Only those Ss who had normal vision or eyeglass-corrected vision were used. The fifth graders of each group read 4.4 lines and had 1.4 (MRs) and 0.6 (normals) errors per line. The MR eighth graders read 5.0 lines to 5.5 for the normal Ss with the errors per line being 1.4 and 0.6, respectively. The age shift was apparent, but even more so in normal children (a decrease of 1.14 against 1.35). The results indicate that the attention span of EMR Ss improves as they grow older and have more education and further development and the predominance of the formal-mechanical aspects in the functioning of the MR's attention must be considered during the organization of the teaching process in remedial schools. (3 refs.) - *R. K. Butler.*

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365 SIEGEL, PAUL S. Incentive motive in the mental retardate. In: Ellis, Norman S., ed. *International Review of Research in Mental Retardation: Volume 3*. New York, New York, Academic Press, 1968, p.1-30.

Although it is not complete, the Hull-Spence theory appears to accomodate experimental findings on incentive motivation better than any other theory. Incentive motivation theory must relate choice behavior to needs, and

to investigate the peculiarities of the anticipatory process in MRs, it must identify the effects of quality and quantity of incentive. British studies of incentive motivation have demonstrated that SMRs are sensitive to social influences as well as the influences of earlier experiments on laboratory tasks. The Hull-Spence tradition has influenced studies at the Peabody laboratories. Methodological flaws in these studies include the assumption that a social variable is a neutral constant across conditions and the use of dependent measures, between-group designs, acute-type studies, and experimenter-defined strength of reinforcer. Research on the meaningful scaling of incentive quality has involved the ordering or selection of incentive preferences and has identified age, sex, and individual preferences. Many studies of social reinforcers have assessed the interaction of a variety of factors with praise statements. Specific hypotheses concerning the differential reactions of institutionalized MRs have been derived from social reinforcement research. Research on incentive and discrimination learning indicates that MRs have a discrimination learning deficit. This deficit has been attributed to lack of attention to the relevant dimension of a class of cues, problems with attention and cue-distinctiveness, or imbalance in value of incentives. (91 refs.) - *J. K. Wyatt.*

366 GERJUOY, IRMA R; & WINTERS, JOHN J., JR. Development of lateral and choice-sequence preferences. In: Ellis, Norman R., ed. *International Review of Research in Mental Retardation: Volume 3.* New York, New York, Academic Press, 1968, p. 31-63.

An overview of research on preference development indicates that responses change as a function of increasing mental age. Youngest and dullest Ss tend to perseverate to the same position or strategy throughout a task, regardless of type or schedule of reinforcement. Invariant alternation is the second most common response sequence. In this sequence, the stimulus or response preferences with which an S began a task are eliminated, and behavior is determined by the sequence of responses. This strategy is used by normal children until about the age of 5 1/2 years and by MRs and adolescents of the same mental age. The responses of older Ss are more affected by task variables and reinforcement schedules, and choice-sequence preferences become less powerful than stimulus or response preferences. At some ages, the behavior of MRs varies more from S to S than the behavior of normals. MRs operate at a lower stratum than normals, and at some points on the developmental scale, their range of preference behavior is wider than that of normals. Previous experience does affect the responses of MRs; when the material is familiar, they have the same preferences as do normals, but when the material is not familiar, they exhibit no overall preference. (35 refs.) - *J. K. Wyatt.*

367 BIJOU, SIDNEY W. Studies in the experimental development of left-right concepts in retarded children using fading techniques. In: Ellis, Norman R., ed. *International Review of Research in Mental Retardation: Volume 3.* New York, New York, Academic Press, 1968, p. 65-96.

The fading-in technique appears to be a promising procedure for the development of left-right concepts in the discrimination of geometric forms in normal and MR children. In one experiment, 90 normal (CA range 4 yrs 4 mos to 7 yrs) and 89 EMR (CA range 6 yrs 4 mos to 16 yrs 11 mos; MA range 3 yrs 10 mos to 8 yrs 10 mos; IQ range 32 to 65) children were trained on form, mirror-image, and rotated mirror-image discriminations on 5-choice matching-to-sample problems. Training in mirror-image discrimination consisted of fading-in, by construction, mirror images of 3 forms. Although MR Ss made more repetitive errors than did normals, the program effectively taught left-right discrimination to many MR Ss. Success was positively related to MA, and the performance of MRs was better on the early part of the training (discrimition of simple forms in rotated positions) and poorer on the later part (discrimination of rotated mirror-images). A second experiment investigated the effects of: a modified fading-in procedure; revised stimuli; and revised pre-, post-, and generalization tests. This procedure involved the establishment of a stable base-line performance on upright nonmirror-image forms and training in upright mirror-image sets and rotated mirror-image sets. The stimuli used for mirror-image training proved to be inadequate for the development of left-right conceptualizations. The data obtained did not allow for an adequate evaluation of this revised fading-in strategy but did identify areas where further revisions are needed. (14 refs.) - *J. K. Wyatt.*

368 SCOTT, KEITH G.; & SCOTT, MARCIA STRONG. Research and theory in short-term memory. In: Ellis, Norman R., ed. *International Review of Research in Mental Retardation: Volume 3.* New York, New York, Academic Press, 1968, p. 135-162.

Data from digit span tests, factorial studies of the Wechsler Intelligence Scale for Children, patterns of subtest scores on psychometric measures, and validation of the trace factor indicate that short-term memory is an important variable in MR performance. Among the theoretical interpretations of short-term memory are Broadbent's limited channel capacity model, Ellis' stimulus trace theory, interference theory, and Spitz's neural theory. An understanding of process should precede comparative investigations, because comparative research designs present many problems which may be due to confounding unknown and population variables. Before degree of learning can be established, the role of individual differences in short-term memory and the rate at which individuals differ in their ability to benefit from practice must be determined. Short-term memory experiments have investigated digit span performance, dichotic listening, inhibition, reaction time, and recognition. The findings of these studies suggest that short-term memory undergoes systematic developmental changes, MA rather than IQ is important in dichotic recall, and MRs are very susceptible to interference. Similarity appears to produce interference in recall, and speed of reaction time may be related to ability to vary a set rather than to short-term memory. New experimental techniques which may have major theoretical importance are the dichotic listening technique and the miniature experiment. (105 refs.)
J. K. Wyatt.

369 GOULET, L. R. Verbal learning and memory research with retardates: An attempt to assess developmental trends. In: Ellis, Norman R., ed. *International Review of Research in Mental Retardation: Volume 3.* New York, New York, Academic Press, 1968, p. 97-134.

Although a large volume of research compares the performance of normal and MR Ss on verbal learning tasks, very little research assesses changes in MR learning that may be due to maturation or the effects of factors that covary with age; also the interaction of development and learning processes in MR children has received only minimal consideration. If verbal learning theory is to add to the understanding of MR behavior, it must emphasize variables that covary with CA, specific transfer from preexperimental learning, learning to learn training, and the effects of factors, such as institutionalization and school training. Paired-associate learning research suggests that MR learning is facilitated by longer anticipation and/or presentation periods of paired-associate pairs and distributed practice and hindered by short information-processing periods. Paired-associate learning is conceptualized as a 2-stage process which involves a response-recall stage and an associative stage. Meaningfulness and presentation rate appear to affect paired-associate learning. The findings of a large number of studies on serial learning suggest that when differences due to IQ and MA are statistically partialed out, MRs and normals learn the lists in the same manner. Other studies have investigated the role of verbal mediators, transfer of training, retention and memory, and free recall and associative clustering. MRs and MA-matched normals appear to learn verbal tasks other than serial lists at comparable rates; however, the validity of this conclusion has not been reliably established. (120 refs.)
J. K. Wyatt.

370 BAUMEISTER, ALFRED A.; & KELLAS, GEORGE. Reaction time and mental retardation. In: Ellis, Norman R., ed. *International Review of Research in Mental Retardation: Volume 3.* New York, New York, Academic Press, 1968, p. 163-193.

Studies in which simple or complex reaction-time tasks were used with MRs have included investigations of the relation between reaction time and intelligence, stimulus intensity, stimulus compounding, stimulus and response complexity, temporal factors, motivation variables, and EEG responses. The evidence indicates that MRs appear to have a prestimulus arousal deficiency which affects initial levels of learning and the maintenance of a set over lengthy warning intervals. Although the source of this arousal deficiency is not clear, it is obviously related to the deficient development or disruption of some fundamental property of neural organization. MRs do not respond to the temporal aspects of a reaction-time task in the same manner as do normals, and their subjective expectancies of certain stimulus events differ. The relation between reaction time and intelligence in a MR population is approximately linear. MRs are more influenced by the intensity of the reaction signal than are normals. High reaction signal intensity and compound reaction stimuli decrease the reaction time of MRs. Temporal factors (uncertainty, length of warning interval, psychological refractory period, and duration of

warning signal) are related to MR performance. Motivational variables which influence reaction time are money and reprimand. Within-subject variability appears to be an important factor which should be considered in evaluating the performance of MRs, since greater variability may be a characteristic of the MR individual. Reaction time appears to be a sensitive and reliable dependent measure which can be effectively used to investigate a variety of complex relations between MRs and their environment. (57 refs.) *J. K. Wyatt.*

371 ELLIS, NORMAN R. Memory processes in retardates and normals. In: Ellis, Norman R., ed. *International Review of Research in Mental Retardation: Volume 4.* New York. New York, Academic Press, 1970, p. 1-32.

Data from 14 studies analyzing long-term memory and short-term memory of normals and MR Ss show that "2 processes are involved in the short-term storage of supraspan messages" with one of these being defective in the institutionalized MR Ss. In addition, "rehearsal strategies" are needed for only one of these storage processes. Retardates' difficulties may be related to failure of these rehearsal mechanisms. These studies indicate that there are 2 short-term memory processes in normal and retarded Ss with the MR Ss having problems with rehearsal strategies which appear to be crucial factors to short-term storage. The task involved a subject console of a 9 position memory apparatus. Theoretical position for this research is described as a "modified version of the Waugh and Norman theoretical conceptions." Data also indicate that span of attention involves both secondary and primary memory with secondary memory only varying with intelligence. Lack of a secondary memory or a rehearsal strategy may be crucial for MR performance. Cultural retardation does not seem to be related to secondary memory. (19 refs.) - *B. Bradley.*

372 WOLFENSBERGER, WOLF; & MENOLASCINO, FRANK. Basic considerations in evaluating ability of drugs to stimulate cognitive development in retardates. *American Journal of Mental Deficiency*, 73(3):414-423, 1968.

A review of a number of theoretical and methodological issues which generate the adequate design of studies concerning development enhancing drugs pointed out the need for experimental designs substantially different from those typically employed in the past. Few of the reviewed studies constituted an adequate test of drug efficacy, whether positive or negative in outcome. Studies should be designed to constitute an adequate, fair, and efficient test of pharmacological effects. Target groups should be comprised of Ss meeting revised criteria. Studies should not investigate the drug (effects) itself, but the interaction between the drug and the experimentally controlled environmental stimulation. (25 refs.) - *D. F. McGrevy.*

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373 FISHER, MARY ANNE; & ZEAMAN, DAVID. Growth and decline of retardate intelligence. In: Ellis, Norman R., ed. *International Review of Research in Mental Retardation: Volume 4.* New York, New York, Academic Press, 1970, p. 151-191.

A semi-longitudinal analysis of Stanford-Binet mental ages for 1,159 MR institutionalized Ss shows that "a single equation fitted well the spontaneous growth and decline of retardate intelligence (MA) at all levels." Total number of tests and retests was about 4,700. Ss were analyzed in 7 diagnostic categories: epilepsy, cultural familial, congenital cerebral defect, mongolism, cranial anomalies, motor deficit, and miscellaneous. Equal numbers of each sex were available with about the same proportion of cases at each level of MR except the Borderline classification. Data were obtained from records of Stanford-Binet MAs for 1,159 residents who varied greatly in CA and IQ and who had been tested at least twice. Results showed that the growth of MA of MR residents is "roughly linear between 5-16, regardless of level with the growth rate being directly related to level." Higher level MRs grow in MA (not linearly) longer than lower level Ss. MAs for all levels declined with advanced age, beyond 60. There is a decrease in IQs for retardates at ages 5 to 16 years even though there is a linear increase in MA. At CAs 16 to 60 years, the IQ seems to be stable with higher levels gaining in MA. Variables of sex and diagnostic category did not seem to be significant on the growth of intelligence when the level was controlled. A simplified equation termed "K" may be more reliable than IQ for an accurate index of intelligence. "A composite of a logarithmic growth factor, a linear decline and a level factor yielded a close fitting family of functions for the empirical, MA vs. CA curves." (52 refs.) - *B. Bradley.*

374 O'CONNOR, NEIL. Psychology and intelligence. In: Shepherd, Michael; & Davies, D. L., eds. *Studies in Psychiatry*. London, England, Oxford University, 1968, Chapter 4, p. 65-82.

The Social Psychiatry Research Unit of the Institute of Psychiatry at Maudsley Hospital has pursued laboratory and experimental studies of the MR's ability to learn. Experiments showed that the MR were capable of productive work if adequate incentives were available. Emotional problems and not intelligence were the greatest barrier to success, and regular work, support, and sometimes therapy aided adjustment. The nature of the intellectual defect in the MR appears to be in cross-modal coding or the association of verbal with auditory, written, or visual clues; and if such associations are strengthened, the individual is better able to learn. Perceptual processes and memory appear to be normal. In teaching the MR, then, it is important to present material in more than one form and to overcome an apparent "discontinuity" in learning (failure to transfer concepts) by using the same reinforcing approach to each item to be learned. (45 refs.) - *E. L. Rowan.*

375 SERSEN, EUGENE A. Conditioning and learning. In: Wortis, Joseph, ed. *Mental Retardation: An Annual Review--Volume I*. New York, New York, Grune & Stratton, 1970, p. 28-41.

Investigations of the learning behavior of MRs suggest that learning difficulties may be part of a more pervasive problem, such as a vigilance or arousal deficiency, an inability to inhibit attention to internal stimuli, or a nonfocalized responsiveness to a variety of irrelevant external stimuli. Classical conditioning, discrimination learning, and verbal mediational learning studies have shown that MRs have difficulty reversing previous learning or adapting to changes in cue significance--findings which may demonstrate an inability to inhibit responses which were previously relevant. Although MRs can use verbal mediation to facilitate learning or responding, they use it less effectively or spontaneously than normals. The question of homogeneity and generality of defect within the MR population needs to be resolved; however, the uncertain reliability and validity of the largest diagnostic categories and the large variability of performance found in well-defined groups make this difficult. If research emphasis were shifted from the study of defectives to the study of defect, groups deficient on a specific type of task would be studied, and constellations of defect as well as their common mechanisms might be identified. (91 refs.) - *J. K. Wyatt.*

376 OHLRICH, ELIZABETH S.; & ROSS, LEONARD E. Acquisition and differential conditioning of the eyelid response in normal and retarded children. *Journal of Experimental Child Psychology*, 6(2):181-193, 1968.

Classical eyelid conditioning procedures were used on normal and MR children to analyze single-cue acquisition, differential conditioning, and differential-conditioning reversal. Experiment I included 32 MR children (mean MA 84 mos; mean CA 159 mos) and 32 normal first-grade children (mean CA 83 mos) matched on MA scores obtained on the Peabody Picture Vocabulary Test. Two CS-UCS intervals (ISI), 500 and 800 milliseconds were used. A second experiment employed 32 college students. Acquisition was dependent upon ISI with the normal 800-millisecond normal group surpassing both the MR groups as well as the 500-millisecond normal group. In differential conditioning, both retardate ISI group and normal 800-millisecond group responded differentially, but just the 800-millisecond normal group showed learned discrimination. Neither group reversed their differential responding during the reversal phase. College Ss obtained a high level of single cue conditioning with both ISIs, an increasing amount of differential conditioning across trials with both ISIs, and good discrimination reversal with the 800-millisecond ISI condition. Results suggest that the comparison of general "conditionability" with normal versus MR is questionable. Successful differential conditioning and reversal occur in decreasing degree in college adults, normal children, and MR children. (12 refs.) *B. Bradley.*

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377 McMANIS, DONALD L.; BELL, DONALD R.; & PIKE, EARL O. Performance of reward-seeking and punishment-avoiding retardates under reward and punishment. *American Journal of Mental Deficiency*, 73(6):906-911, 1969.

The effects of consistency between a person's orientation and the conditions under which he works were examined in 37 institutionalized moderately and mildly retarded adolescents. The Ss were identified as either reward-seeking (N=20) or punishment-avoiding (N=17) on

the basis of performance in a previous study. All Ss were randomly assigned to either a reward-seeking or a punishment-avoiding reinforcement condition. The dependent measures were accuracy and persistence of pursuit-rotor performance. Standard apparatus with a 20-second alternating trial-rest session was used. All Ss were more accurate under the punishment-avoiding condition ($F=4.17; p<.05$), and there was no interaction between the 2 main effects (orientation and condition). On the persistence measure, neither main effect was significant; however, the interaction between the main effects was significant ($F=14.6; p<.01$). Reward-seeking Ss were more persistent under the reward-seeking condition, and punishment avoiders were more persistent under the punishment-avoiding condition. This lends support to the construct validity of the concepts of reward-seeking and punishment-avoiding. (5 refs.) - *J. M. Gardner.*

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378 JOHNSON, J. T.; & NEAL, B. W. CS-USC interval in differential eyelid conditioning with retardates. *Psychonomic Science*, 9(-):327-328, 1967.

In a differential eyelid conditioning study with MRs, 4 values of CS-USC interval and the effect of a 2,000 cps versus a 1,000 cps tone as CS+ were investigated. It was found that differential conditioning occurred at an interval of 500 msec. This result was compared with the optimal differential interval of 800 msec for college students. (No refs.) *A. Huffer.*

No address

379 PASCHKE, RICHARD R.; SIMON, SEYMORE; & BELL, ROBERT W. Vicarious discrimination learning in retardates. *Journal of Abnormal Psychology*, 72(6):536-542, 1967.

After 120 MRs had viewed a film where a human learned a 4-choice discrimination problem, they were asked to perform the same task. Independent variables included observation conditions (the human shocked, not shocked, or cartoon control), length of observational experience (32 vs 64 trials), and testing conditions (aversive buzzer vs no buzzer for incorrect responding). Vicarious discrimination learning occurred under no shock conditions and was a direct function of the number of observations. (17 refs.) - *A. Huffer.*

No address

380 SPRADLIN, JOSEPH E.; FIXSEN, DEAN L.; & KANE, JOHN. Discrimination learning by psychometrically untestable retarded children. *Project News* of the Parsons State Hospital and Training Center, 4(9):5-16, 1968.

Two institutionalized untestable MR girls (CA 7 yrs, SQ 21; CA 13 yrs, SQ 12) formed an almost perfect stimulus discrimination in 2 experiments. Push button manipulandum served as the stimulus lights as well as the manipulanda for stimulus and response discrimination. Phase I of each experiment was designed to condition stimulus discrimination, and Phase II was used to establish response differentiation. Two 20-minute sessions/day, 6-7 days each week were used during Experiment I; sessions for Experiment II lasted 60 minutes each, 3/day, 7 days a week. Reinforcement (candy, Metrecal liquid and wafers, and social) was on a fixed ratio schedule in Experiment I and on a variable-interval schedule in Experiment II. Response differentiation was not as quickly established as stimulus discrimination, especially in Experiment II. Failure to condition response differentiation may be because of the variable-interval schedule and/or the order in which the stimulus conditions were presented. (5 refs.) *C. L. Pranitch.*

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381 KNIGHT, MARCIA S. The effects of intertrial interval duration on short-term retention of a two-choice visual-discrimination task by retarded children. *Journal of Experimental Child Psychology*, 6(2): 241-253, 1968.

Analysis of intertrial-interval (ITI) duration was reported for a 2-choice visual-discrimination task by MR children. Nine institutionalized MR children (mean MA 85 mos; mean IQ 53) served as Ss. CAs extended from 127-233 months, and all Ss were ambulatory. A semiautomated version of the Wisconsin General Test Apparatus was employed with the task involving 12 forms and 7 colors. Ss were run to a criterion of 20/25 correct responses on a standard 2-choice form-discrimination task. A counter-balanced factorial design included these factors: Ss, 3 ITI factors, difficulty, position sequence, and repetitions. Results indicated significant performance decrements with longer (20 second) intra-problem ITI which suggests that short-term memory is an important factor. The retention loss was related to proactive interference variables. Other variables influencing performance on this visual-discrimination task were determined as difficulty and

position. Some of these data were supporting for the interference theory, while there were "less impressive" results for the decay theory. The retention of these MR Ss was cited as similar to normal adults on verbal learning tasks. (25 refs.) - *B. Bradley.*

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382 MILGRAM, NORMAN A.; & NOCE, JAMES S. Relevant and irrelevant verbalization in discrimination and reversal learning by normal and retarded children. *Journal of Educational Psychology*, 59(1):169-175, 1968.

A discrimination learning and reversal shift task under varying conditions of relevant and irrelevant verbalization was administered to normal children (CA 7 yrs) and MR (comparable MA) children. Results showed that verbalization of the relevant class of cues aided performance but decreased as the number of cues decreased; verbalization of irrelevant dimensions interfered with performance. These effects were more evident on discrimination learning than on reversal shift and were more true for normals than MRs. (14 refs.) *A. Huffer.*

No address

383 GRODEN, GERALD. Mental ability, reaction time, perceptual motor and motor abilities in handicapped children. *Perceptual and Motor Skills*, 28(1):27-30, 1969.

Analysis of reaction time, mental ability, and simple and complex motor skills for 54 MR children indicates that the relation between reaction time and MA was eliminated when the complex (but not simple) motor skills were held constant. Ss were 54 MR children from an outpatient clinic with a CA range from 5-13 years. MA as measured by the WISC or SB extended from 3-13 with a mean MA of 7.33. Tests measured reaction time, simple-motor ability and complex-motor ability. Results showed that reaction time was significantly related to MA. This relation was not reduced when control for finger oscillation, motor strength, and CA was introduced. But reduction did occur when key press was held constant. Simple-motor ability does not appear to be a factor in the relation between intelligence and reaction time for the MR population. The complex perceptual-motor task seemed to require an additional factor which was not identified. (12 refs.) - *B. Bradley.*

384 HEAL, LAIRD W.; & JOHNSON, JOHN T., JR. Inhibition deficits in retardate learning and attention. In: Ellis, Norman R., ed. *International Review of Research in Mental Retardation: Volume 4.* New York, New York, Academic Press, 1970, p. 107-149.

Analysis of inhibition deficits in retardate learning is concerned with response inhibition, stimulus inhibition, abstraction, encoding, and rigidity. Inhibition is defined as "an adaptive reduction in responding." This analysis and review of research focuses upon inhibition of learned responses and inhibition of attention to extraneous stimuli. Data show that MR extinguish a classically conditioned eyelid response slower than do normals. MR Ss have difficulty in forming an inhibitory set. Also, the retardate appears to have trouble in inhibiting his responses to the unreinforced conditioned stimulus. MRs are deficient in instrumental discrimination learning, but there seems to be only slight evidence for a deficit in their ability to inhibit responding to the negative cue. Data supported a retardate deficit in stimulus inhibition especially in studies of the retardates' CA peers. Distraction by extraneous cues was not a significant factor in a comparison of normals and retardates; however, the retardates had difficulty when novel cues were "embedded in the learning task." The process of encoding seems to be poorer for retardates than normals. The hypothesis of rigidity is supported by data from various studies and should be reapplied to additional research with the MR. (95 refs.) *B. Bradley.*

385 KELLAS, GEORGE. Effects of preparatory intervals and stimulus intensity on reaction times of normal and retarded individuals. *Journal of Comparative and Physiological Psychology*, 68(2):303-307, 1969.

A simple reaction time (RT) experiment was used to examine the relation between intelligence, preparatory interval or PI (defined as the time between the onset of a warning signal and the onset of the reaction signal), and stimulus intensity. Equal numbers (36) of normals (mean CA 20.8 yrs) and institutionalized retardates (mean CA 22.3 yrs; mean IQ 58) were used. There were 3 levels of PI (2, 7.5, and 15 seconds), 3 levels of stimulus intensity (30, 60, and 90 db), and 2 levels of intelligence (normals and retardates). The warning signal was a light mounted 12 inches above the response key. Retardates were significantly more variable than normals (F_{max}=43.92, k-36; df=17). A

3x3x2 analysis of variance indicated significance for all main effects and the interactions between intelligence and PI, intelligence and intensity, and PI and intensity. Thus, retardates were inferior to normals, and both groups did significantly better when intensity and PI were increased. As intensity increased and as PI increased, the differences between the groups decreased. (12 refs.) - *J. M. Gardner.*

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386 GRUEN, GERALD; & ZIGLER, EDWARD. Expectancy of success and the probability learning of middle-class, lower-class, and retarded children. *Journal of Abnormal Psychology*, 73(4):343-352, 1968.

A comparison of middle class (normal IQ), lower class (normal IQ), and MR children of the same MA on a partially-reinforced, 3-choice learning task showed a maximizing pattern of response consistent with low expectation of success in the lower class and MR children. After a pretest to establish success, failure, or control conditions, the children were asked to press one of 3 buttons to receive a marble on a random reinforcement schedule. Middle class children tended to pattern their responses (such as right, middle, and left) in attempts to obtain maximal rewards, and this system was enhanced by pretest success. Lower class and MR children maximized their responses to the button which appeared to pay most frequently, thus settling for a lower level of success. These findings are consistent with developmental theory that congitive development is the same in children controlled for MA and that variations in performance are the result of motivational differences. (30 refs.)
E. L. Rowan.

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Lafayette, Indiana 47907

387 RAPIER, JACQUELINE. Learning abilities of normal and retarded children as a function of social class. *Journal of Educational Psychology*, 59(1):102-110, 1968.

MR and normal elementary school children (N=80) from high and low socioeconomic backgrounds were compared on a series of learning tasks. After learning a serial list and a paired-associate list, the Ss were divided into groups on the basis of CA, IQ, and background. The experimental group learned another list of paired-associates under mediation. A week later all Ss learned a third list. Results showed that there were IQ differences in performance for both the high- and low- background groups. Over the 3 lists, the low background MRs performed increasingly better than did the high background MRs. (No refs.) - *A. Huffer.*

No address

388 KOPATIC, NICHOLAS J.; & KOPATIC, NEDA. The reliability of mental retardates in judging subjective phenomena. *Training School Bulletin*, 65(4):126-129, 1969.

Twenty normal and 20 mildly retarded young adults were compared on the reliability of judging auditory stimuli by using the method of limits. A standard tone of 50 decibels (db) was presented, followed by tones in 5 db steps to 70 and 30 db, respectively. The Ss were required to indicate when the comparison tones were equal, louder, or quieter. Each tone was presented for 2 seconds with a 3-second delay between the tones, and a 5-second interval between trials. While both groups tended to perform better over time, the retardates were significantly less reliable (more variable). This difference was ascribed to possible temporal sequences of the stimuli, the requirements of concentration, and language problems (understanding the concept of equal). It is possible that other methods (the method of constant stimuli) would be more suitable with MRs. (12 refs.)
J. M. Gardner.

Cumberland County School District
Bridgeton, New Jersey 08302

389 FAGAN, JOSEPH F., III. Short-term memory processes in normal and retarded children. *Journal of Experimental Child Psychology*, 6(2):279-296, 1968.

Short-term memory processes involving acquisition and retention were studied in one EMR and 2 normal (mean IQ 102; mean CA 101 mos) groups of children (13 in each). The 2 normal groups were matched with the MR Ss for sex and MA. Multiple immediate- and delayed-recall tests for a series of 24 nonrepeated 5-digit sequences were administered. One normal group received a series of 6-digit messages under the same recall conditions. Results support the hypothesis of a retardate deficit in immediate recall. There was a retardate acquisition deficit on both item and

ordered recall. Data did not show a retention deficit in the EMR noninstitutionalized children; however, the retention slope for the normals and retardates differed for ordered recall. There was a tendency toward a retardation slope superiority on ordered recall. The retention slope for simple item retrieval was similar for the 2 populations. The MRs' difficulty in immediate recall was indicated by the data, but that of inferiority in retention was not supported. (14 refs.) *B. Bradley.*

Case Western Reserve University
Cleveland, Ohio 44106

390 TERADA, AKIRA. An experimental study on the development of number concept of mentally retarded children: A comparison with normal children of the same MA. *Japanese Journal of Educational Psychology*, 15(1):11-20, 1967.

The development of cardinal number concepts in 133 MRs (MA 3-10 yrs) was compared with that in 69 normal Ss (MA 3-8 yrs). Results indicated that there were few differences between the groups in tasks requiring 1:1 correspondence and counting of homogeneous discontinuous quantities and that the MRs were inferior to the normals in a task requiring the counting of plane figures. As MA increased, the difference became more apparent. These results indicate that number concepts develop at a different rate in MRs. (No refs.) - *A. Clevenger.*

No address

391 DAY, R. H. Sensory spatial after-effects in relation to chronological age, mental retardation, and schizophrenia. *British Journal of Psychology*, 58(1-2):13-27, 1967.

Four experiments are described which test the proposition that visual and kinesthetic spatial after-effect varies as a function of CA, MR, and schizophrenia. The after-effect involved judgment of the horizontal plane after the S was stimulated by a slanted pattern or object. In terms of CA, no variation in the kinesthetic after-effect occurred; however, the effect may decline with age. There was no difference between normals and MRs in the visual and kinesthetic after-effects, nor did the schizophrenic Ss differ from the normals. (27 refs.) - *A. Clevenger.*

No address

392 BORKOWSKI, JOHN G.; AHEARN, JOSEPH P.; & PEARSON, JOHN. Retention and utilization of mediators by retardates. *Psychonomic Science*, 15(2):96-97, 1969.

Seventy-eight institutionalized retarded children (mean CA 16.2 yrs; mean IQ 49.1) who were randomly assigned to 4 groups, one serving as a control, were given chaining and control paradigms with highly associated object pictures as the A and B terms and color as the C term. C terms were associated with B stimuli but not A. Retention intervals were 30 seconds, 20 minutes, and 24 hours. No evidence was found for a mediation retention deficit in mildly retarded children. MRs stored mediational links up to 24 hours and could use these in A-C learning, but this is restricted by task and procedural considerations. Data suggest that MRs retain information to the same degree as control Ss and show no memory loss with familiar materials. (5 refs.) - *V. G. Votano.*

University of Notre Dame
Notre Dame, Indiana 46556

393 BORKOWSKI, JOHN G.; McGRATH, ROBERT A.; & DOYLE, L. THOMAS. Backward associations in the paired-associate learning of retardates. *Developmental Psychology*, 1(5): 470-473, 1969.

In a 2 X 3 factorial design, 36 normals (CA 5 to 6 yrs) and 49 MRs (CAs 8 to 16 yrs; IQs 30-60) tested in one of 3 transfer paradigms after paired-associate (PA) learning showed the same patterns in the formation of backward associations. Highly meaningful concrete pairs of objects were presented in the forward (A-B), backward (B-A), B-A items repaired ($B\text{-}A_r$), and control (C-D) paradigms. Positive and negative transfer effects were consistent for both groups; however, MRs were slower to unlearn interfering backward associations in the $B\text{-}A_r$ paradigm. The lack of a significant Paradigm X Type of S interaction implies the comparability of normal and MR associative processes (backward). The presence of backward associations in MRs has implications for the areas of transfer (of response availability), mediational effects, and paired-associate learning. (9 refs.) *D. F. McGrevy.*

University of Notre Dame
Notre Dame, Indiana 46556

394 MORGAN, SAM B. Responsiveness to stimulus novelty and complexity in mild, moderate, and severe retardates. *American Journal of Mental Deficiency*, 74(1):32-38, 1969.

The experiment studied responsiveness of retardates to visual stimuli varying in complexity and novelty. The design consisted of the 3 levels of retardation, 3 levels of complexity, and 2 levels of novelty. Significant increases in viewing response rate were found with increases in complexity; however, no differences were found at the different levels of retardation and novelty. While no 2-factor interaction was found between retardation and complexity, a trend analysis revealed a significant 3-factor interaction of retardation, complexity, and stages. This finding lends some support to the hypothesis that there is an interaction between intellectual level and preferred complexity level. (12 refs.) - *Journal abstract*.

University of Tennessee
Memphis, Tennessee 38101

395 BAUMEISTER, ALFRED A.; BERRY, FRANKLIN M.; & FOREHAND, REX. Effects of secondary cues on rote verbal learning of retardates and normal children. *Journal of Comparative and Physiological Psychology*, 69(2): 273-280, 1969.

A series of 3 studies were conducted to explore the process of stimulus selection by normal children and retardates in paired-associates (PA) learning. Learning of normal children was facilitated by the presence of secondary color cues in a "hard" PA task. Retardates were not similarly affected. Evidence was presented implicating a mediational process. Instructions designed to direct attention to the secondary color cues did not significantly facilitate learning by retardates. Transfer tests, however, indicated that the instructions did determine which cue dimension became functional for the retardates. It was proposed that retardates are particularly limited in their capacity to observe the various stimulus dimensions presented in a verbal PA problem. (7 refs.) *Journal abstract*.

University of Alabama
University, Alabama 35486

396 KEOGH, BARBARA K. Pattern walking under three conditions of available visual cues. *American Journal of Mental Deficiency*, 74(3):376-381, 1969.

Three groups of 20 EMR boys copied patterns by drawing and walking. Pattern walking was conducted under varying conditions of structure of the spatial field: under conditions of no defined reference points, defined reference points, and reference points plus visual tracking cues. In contrast to normal boys, EMR groups did not improve in pattern walking performance under the 3 conditions. EMR Ss appeared confused and disoriented when walking patterns in an expanded spatial field. Findings are interpreted within an attending theory of retardation. (17 refs.) *Journal abstract*.

University of California at Los Angeles
Los Angeles, California 90024

397 WINTERS, JOHN J., JR.; GERJUOY, IRMA R.; & PULLEN, MARTHA M. Lateral and choice-sequence preferences by normals and retardates in a binary-choice task. *American Journal of Mental Deficiency*, 74(3):382-388, 1969.

Three groups of normals and 3 groups of retardates, 20 in each group, with MAs of approximately 3-0, 5-6, and 8-0 years were given a binary-choice task on the Wisconsin General Testing Apparatus under 2 counterbalanced reinforcement schedules: 100:100 and 00:00. With some minor exceptions, the lowest-MA Ss tended to perseverate the most, the intermediate group tended to alternate the most, and the highest-MA Ss more frequently adopted more complex response patterns independent of the reinforcement schedule. Results are discussed in terms of a hierarchy of choice-sequence behavior and its relation to unilateral preferences. (20 refs.) *Journal abstract*.

Johnstone Training and Research Center
Bordentown, New Jersey 08505

398 KELLAS, GEORGE. Reaction-time and response variability of normal and retarded individuals. *American Journal of Mental Deficiency*, 74(3):409-414, 1969.

A simple reaction-time task was employed in which between- and within-subjects response variability was examined for both normals and

retardates. For both ability groups, reaction-time variability was functionally related to the direction of the reaction time response (key press and key release), preparatory intervals, and reaction-signal intensity. Between- and within-subjects variability was greater for retardates than normals. In addition, within-subjects variability was found to contribute more to the average performance of retardates than normals. These results are discussed in relation to previous research findings. (10 refs.) - *Journal abstract.*

University of Kansas Medical Center
Kansas City, Kansas 66103

399 DREW, CLIFFORD J. Associative learning as a function of material associative strength and MA. *American Journal of Mental Deficiency*, 74(3):369-372, 1969.

The associative learning rate of 48 MR and 48 normal Ss was investigated as a function of material associative strength and MA. Data analysis revealed that retardate acquisition rates were not different from those of normal Ss when scores were statistically adjusted for group differences in MA. Without MA adjustments, normal Ss made significantly fewer errors in reaching criterion than retarded Ss. Both subject groups performed significantly better on material of high associative strength than on that of low associative strength. Subject classification did not interact with material associative strength. (13 refs.) - *Journal abstract.*

University of Texas
Austin, Texas 78701

400 GALLAGHER, JOSEPH W. Mediation as a function of associative chains in normal and retarded children. *American Journal of Mental Deficiency*, 73(6):886-889, 1969.

The influence of mediation on the paired-associate (PA) learning of 40 mildly retarded institutionalized children and 19 normal children of comparable MA was studied. Each S received a list of 6 pairs of words. A chaining (A-B, B-C, A-C) paradigm was used, and each S learned only the A-C list with the other stages inferred. Two pairs had high free association strength (FAS) as determined by normative data between both the A-B and B-C links; 2 pairs had low FAS between the links; 2 pairs were nonassociated. The stimulus word was presented followed by a 2-second interval, and then the stimulus and response words presented together. Inter-trial time was 4 seconds. Ss failing to reach a criterion of 2 consecutive errorless trials in 20 were eliminated. For all pairs the normals learned faster than the retardates ($F=61.16$, $p<.01$). In addition, there was a significant effect for the different lists ($F=14.19$, $p<.01$). Individual t tests indicated that the high FAS lists were learned significantly faster than the low FAS lists, which were higher than the nonassociated lists. This indicates that retardates use association to facilitate learning and that learning is related to the degree of multiplicative value of the associative links. (11 refs.) - *J. M. Gardner.*

University of Alabama
University, Alabama 35486

401 DAS, J. P. Development of verbal abilities in retarded and normal children as measured by Stroop Test. *British Journal of Social and Clinical Psychology*, 8(1):59-66, 1969.

The Stroop Test (ST) was administered to 102 retarded special school students (mean CA 13 yrs) and 208 normal children (CA range 10-15 yrs) who were enrolled in regular schools. The ST consists of 3 stimulus charts: a word chart with the words *blue*, *green*, *red*, and *yellow* written in black on white; a color chart with the 4 colors; and a word-color chart in which the color names appear in conflicting colors (for example, the word *red* is written in the color blue). Working as fast as possible the Ss are required to read the words on the word and color-word charts and name the colors on the color chart. Normals did better on word reading than on color naming, while the retardates did better on color naming. (This reversal is found in first graders.) Both groups demonstrated interference effects on the word-color chart, with retardates performing significantly worse than normals who did not differ from each other across age groups. Product moment correlations between scores on the Progressive Matrices test, IQ scores, and the ST scores were significant but low (for example, IQ and color-naming correlated -0.22, $p<.05$.) (8 refs.) - *J. M. Gardner.*

University of Alberta
Edmonton, Alberta, Canada

402 ADAMS, JULIA. Delayed language development. *Journal of Speech and Hearing Disorders*, 34(2):169-171, 1969.

Although the S was institutionalized at age 6 months as severely MR, later speech therapy and intensive stimulation revealed that he had an average intelligence. At age 2 years, he was hospitalized for repair of a meningomyelocele and urinary tract difficulty. During this period, he had daily speech therapy with supplementary verbal stimulation by his grandparents and the nursing staff. At age 2 1/2 years, he had progressed to the dull-normal range, and by age 4, he had an average IQ, walked with braces and crutches, and lived with his family. (No refs.)
E. F. MacGregor.

No address

403 TAYLOR, RAYMOND G., JR.; & NOLDE, S. VAN L. Correlative study between reading, laterality, mobility, and binocularity. *Exceptional Children*, 35(8):627-631, 1969.

The relation between reading ability and 3 measures of neurological organization was examined with 50 dyslexic children (mean CA 111 mos). None had known pathology or indication of brain damage; all were enrolled in regular schools and thought to be normal with the exception of the reading problem. The study was carried out at The Institutes for the Achievement of Human Potential. Neurological organization was broken down into 3 areas: mobility and manual competence, visual competence, and laterality (handedness, eyedness, and footedness). Reading ability was assessed with standardized instruments appropriate for the S's grade level. On initial examination, there were no significant relations between the neurological measures and reading. Following a program of training patterned after Delacato's theory, the Ss were re-tested. Moderate to weak correlations were found between reading and mobility (r=.38), laterality (r=.49), and the total neurological organization score (r=.50). This provides some support for the Doman-Delacato theory that reading skill depends upon neurological organization. (2 refs.)
J. M. Gardner.

Philadelphia Community College
Philadelphia, Pennsylvania

404 IRIGARAY, LUCE. Psycholinguistic approach of the language of the retarded. *Neuropsychologia*, 5(1):25-52, 1967.

Thirty Ss with varying degrees of MR and with differing etiologies were administered a group of psycholinguistic tests. A distinctive pattern of language disorganization was found in MRs and aphasics. Their performance suggests a prevalence of syntagmatic constraints on paradigmatic choices and a lack of precision. (No refs.) - *A. Huffer.*

No address

DEVELOPMENTAL ASPECTS--SOCIAL

405 BALTHAZAR, EARL E.; & ENGLISH, GEORGE E. A system for the social classification of the more severely mentally retarded. *American Journal of Mental Deficiency*, 74(3):361-366, 1969.

Subjects were 288 institutionalized, ambulant, severely and profoundly MR individuals. Standardized procedures for the direct observation, rating, and scoring of social behaviors were obtained from the Central Wisconsin Colony Scales of Adaptive Behavior. Previous investigations have been concerned with the determination of the factor structure of ward behaviors. The present study describes a methodology for classifying individual behaviors and for grouping Ss on the basis of the factor scales. Two major groups and 12 subgroups emerged from this investigation. Results are discussed in terms of a system for incorporating the behavioral aspects of the AAMD classification on a rank-order basis. (8 refs.) - *Journal abstract.*

Central Wisconsin Colony and Training School
Madison, Wisconsin 53704

406 GIEHR, ELISABETH. Das geistig behinderte Kind als Mitglied einer Gruppe (The MR child as a member of a group). *Lebenshilfe*, 6(3):128-136, 1967.

The MR child, as any child, is a social being and needs the reciprocal influences of the mother-child, child-family, and child-non-family groups if he is to take his place in the community. From the will assertion point of view, many healthful and non-healthful influences are experienced by the MR child in an artifically-constructed family-group model and later in an MR school-group model. The former group does not function successfully in reaction to the MR child's assertion of will, whereas the latter does. Careful analysis of inter-human relations, types, and reaction possibilities in a group can lead to more positive effects of a group on the MR child. (No refs.) - *S. P. Glinksy, Jr.*

Landratsamt
629 Weilburg/Lahn
West Germany

407 VAN BENTHAM, J. Going nowhere. *Special Education in Canada*, 43(4):9-11, 1969.

An EMR boy (CA 18 yrs) illustrates the plight of the MR who realizes and is ashamed of his inadequacies and wants to be accepted into the normal world. He rejects the sheltered workshop and can not accept the idea that he needs supervision and can not be independent. He is unable to establish normal friendships and is aware when people try to be nice but talk down to him which reminds him of the stigma of MR. Without understanding and kindness, the EMR will not succeed, but will be cheated and made fun of in a society in which he is unable to adjust. (No refs.) *M. Plessinger.*

Harrow De Groot School
Regina, Saskatchewan, Canada

408 BOHUSZ-SZYSZKO, MARIAN. Phenomenon. *Journal of the Scottish Society for Mentally Handicapped Children*, 3(4):10-14, 1969.

A 16-year-old SMR with little speech, poor vision, and limited experience produces drawings and paintings which would be exceptional even for a normal person. The boy, born in Edinburgh, Scotland, produces direct, realistic drawings of animals, men, machinery, sporting events, insects, and furniture in excellent balance. His sense of color and realism are impressive. Due to his poor eyesight, his art activities and his favorite activity, watching TV, are done at a very close range. (No refs.) - *M. Plessinger.*

No address

409 WARREN, LYNDA W.; & WEISS, DAVID J. Relationship between disability type and measured personality characteristics. *Proceedings of the 77th Annual Convention of the American Psychological Association, Volume 4, Part 2*, 1969, p. 773-774.

An investigation of the relation between disability group membership and objectively measured personality characteristics revealed that disability group membership was significantly (.01 level) associated with differential performance on the Minnesota Multiphasic Personality Inventory (MMPI). The 557 Ss represented 9 disability groups: arthritic and rheumatic, sociopathic, epileptic, cardiac, MR, orthopedic (back), orthopedic (lower limbs), psychoneurotic, schizophrenic, and no disability. The MMPI was administered to all Ss, and dimensional and typological analyses were performed. Although disability groups were differentiated on the basis of the personality characteristics measured by the MMPI, personality types which corresponded to disability types were not found. The data obtained in this study do not support the notion of a "cardiac personality", "arthritic personality", or the like. (5 refs.) *J. K. Wyatt.*

University of Minnesota
Minneapolis, Minnesota 55455

410 GUTHRIE, GEORGE M. The attitude of the retardate toward herself: A summary of research at Laurelton State School and Hospital. *Pennsylvania Psychiatric Quarterly*, 7(1):24-34, 1967.

Interpersonal situations shown in picture and described simply were used to elicit responses from MRs regarding their self-attitudes. Factor analysis indicated that positive or negative attitude constellations can be present including shyness, rejection, over hostility, conformity, and denial. Overt behavior and these attitudes had a low relationship. (No refs.) - *A. Huffer.*

Laurelton State School and Hospital
Laurelton, Pennsylvania 17835

411 WITKOWSKI, TADEUSZ. Investigations on the moral sensitivity of subnormal children. *Annales de Philosophie*, 15(4):95-106, 1967.

Thirty MR and 30 normal boys (CA 12-14 yrs) were given anecdotes with illustrations and asked to indicate the good and bad in each. The MR group attained a mean score of 45 (versus 70 for the normals) on moral sensitivity. Analysis revealed that moral sensitivity is dependent upon IQ, CA, personal experience, and emotional factors. (33 refs.) *A. Huffer.*

No address

412 BALTHAZAR, EARL E.; & ENGLISH, GEORGE E. A factorial study of unstructured ward behaviors. *American Journal of Mental Deficiency*, 74(3):353-360, 1969.

A factor analysis of coping behaviors in a residential population of 288 more SMR individuals is reported. Eighteen factors emerged from the study. Each factor represented a behavioral domain within which individual members of the population responded in a consistent manner. The factors were established from 71 subscale items which were furnished by one section of the Central Wisconsin Colony Scales of Adaptive Behavior. Separate tables delineating the intercorrelations of the subscale items and a listing of the factors are provided. The reliability and validity of current testing practices, as well as the scaling methods for measuring direct observations of unstructured ward behaviors are discussed. (6 refs.) - *Journal abstract.*

Central Wisconsin Colony and Training School
Madison, Wisconsin 53704

413 WEISSKOPF, BERNARD. Learning disorders in children: Behavioral and emotional aspects of child and family. *Southern Medical Journal*, 62(7):811-815, 1969.

Family physicians and pediatricians are assuming a significant role in the diagnosis, treatment, and management of the emotional and behavioral problems of children with learning disorders. The problem is complex and generally requires the coordination of services from other specialized disciplines. Behavioral abnormalities commonly seen in children with learning disorders often encompass hyperactivity, attention problems, impulsivity, lability of moods, and secondary emotional reactions. Frequently, emotional problems stem from an unhealthy parent-child relationship; parents' feelings, attitudes, and needs should be carefully explored and appropriately treated. Parents whose children have a learning disorder at times express feelings of guilt, denial, confusion, disappointment, and shame. These situations should be interpreted by professionals who are able to recognize and provide early intervention to help the family understand and accept their child's handicap. (15 refs.) *S. Half.*

University of Louisville School of Medicine
Louisville, Kentucky 40202

414 TAYLOR, ISABELLE WAGNER. Psychological needs of the handicapped child. *Journal of Rehabilitation in Asia*, 10(2):5-12, 1969.

The psychological needs of the handicapped child are the same as those of the normal child, though handicapped children sometimes find it more difficult to have them satisfied. Most important are the needs for love and acceptance. These include the child's parents, siblings, teachers, and everyone in contact with him. It is dangerous to over-protect the child, for this stifles his needs for adventure and exploration. Other important psychological needs include rebellion, limit setting, friendship, privacy, heterosexual relations, and achieving self-esteem. It is important to remember that a handicapped child is first a child. (No refs.) *J. M. Gardner.*

No address

415 SAHLMANN, LOTTE. Autism or aphasia? *Developmental Medicine and Child Neurology*, 11(4):443-448, 1969.

In cases of severe childhood autism, an exact differential diagnosis is essential. Out of 60 children justly labeled autistic by the investigating hospitals and who could not communicate by speech, 16 were actually suffering from severe executive aphasia which was found to be of a secondary reactive nature. This group improved greatly in their all round personality development as soon as their underlying aphasia was treated. Though their speech and understanding did not progress fast, their behavior changed completely and their personal inter-relationship quickly became near to normal. The remaining 44 pupils with childhood autism were not given any kind of speech therapy because their refusal to talk seemed to be of a genuine autistic non-communicating nature. There was never any discrepancy between linguistic efforts

and general ability to make contact. As the therapeutic approaches to these 2 groups are entirely different, it is important to exclude those children whose underlying condition is aphasia. (5 refs.) - *Journal summary.*

Sheiling Curative Schools
Ringwood, Hants, England

416 MITTLER, P. J., ed. *Aspects of Autism: Some Approaches to Childhood Psychoses.* London, England, British Psychological Society, 1968, 89 p. $1.20.

The most promising hypothesis on the nature of autism identifies the primary defect in terms of a language and coding problem. Autism is not schizophrenia (a primary disorder of social relationships) or the result of psychogenic or faulty conditioning mechanisms. Although many autistic children are MR, autism cannot be regarded as merely another form of MR. Verbal experiments on immediate memory with autistic children who spoke have demonstrated that these children have difficulty in structuring and dealing with complex linguistic inputs. Obstacles to the psychological assessment of autistic children include lack of cooperation, short attention span, lack of exploratory drive and curiosity, imitation difficulty, and complex expressive and receptive language difficulties. Global intelligence tests are often inapplicable and frequently fail to provide the profile of strengths and weaknesses which is needed to design a remedial program. Educational approaches for autistic children should be chosen after a careful observation of their condition and an analysis of their specific learning difficulties. Behavior therapy provides a uniform approach which integrates the efforts of different professional disciplines, facilitates the description of abnormal behavior, and provides a useful method which can be directly applied to therapeutic problems. Psychotherapy for autistic children should recognize that the child has little capacity to make contact, does not necessarily experience himself as a separate psychic entity, cannot integrate sensory experiences into a meaningful reality, and may be unable to initiate action beyond the exploratory behavior of infants. This book would be of interest to psychologists, psychiatrists, educators, special educators, and pediatricians. (189 refs.) - *J. K. Wyatt.*

CONTENTS: Concepts of Autism (Rutter): Recent Experimental Research (Hermelin); Psychological Assessment (Mittler): Educational Treatment (Clark); Psychotherapy (Stroh); Behavior Therapy (Fischer).

417 CHAMBERS, CHARLES H. Leo Kanner's concept of early infantile autism. *British Journal of Medical Psychology*, 42(Part 1):51-54, 1969.

The concept of early infantile autism is traced through its formative stages. Initially conceived by Kanner as a separate behavioral entity, the condition was later thought to represent a form of childhood psychosis. The chief diagnostic characteristics are extreme aloneness, obsessional need for sameness, and mutism. The malady is generally found in the first 2 years of life and is, undoubtedly, due to the conjoint influence of heredity and environment. Parents of autistic children are usually intelligent and emotionally detached. The presence of language is an important prognostic sign. (12 refs.) *J. M. Gardner.*

Bowman Gray School of Medicine
Winston-Salem, North Carolina 27103

418 FAY, WARREN H. On the basis of autistic echolalia. *Journal of Communication Disorders*, 2(1):38-47, 1969.

The phenomenon of autistic echolalia was examined in 3 children. S-1 was a 30-month-old boy (IQ 102) diagnosed as developmental echolalia, S-2 was a 38-month-old boy (IQ 72) chosen to represent delayed language development, and S-3 was a 58-month-old boy (IQ 53) who represented autistic echolalia. Bimonthly records were taken of the Ss responses to 10 verbal requests and 4 identification problems. The number of errors and echoisms was recorded for each session. For S-1 and S-2, the number of errors and echoisms decreased over time, while S-3's rate remained relatively constant for both measures. Of the 3 Ss, only S-3 had the problems of pronominal reversals ("me want"), subvocal mimicking, an unemotional delivery, and general compulsive behavior. Since most autistic children do not develop speech after 5 or 6 years of age, early intervention is imperative. (32 refs.) *J. M. Gardner.*

Department of Pediatrics
University of Oregon Medical School
Portland, Oregon 97201

419 HUTT, CORINNE; & HUTT, S. J. Biological studies of autism. *Journal of Special Education*, 3(1):3-11, 1969.

Behavioral studies of autism support the hypothesis that these children are in a state of chronic high arousal and that their symptomatic behaviors are manifestations of this state. In studies of 2- to 7-year-old non-brain-damaged children who correspond to Kanner's classical description of autism, the Ss avoided eye contact, approached blank human or animal faces before approaching smiling human faces, engaged in increased stereotyped behavior as a function of increased environmental complexity, were more withdrawn in groups of increasing size than normal or brain-damaged children, and engaged in less exploratory behavior. Practical implications of this research are to avoid complex environments, introduce novelty into the environment gradually, and avoid noisy, crowded situations. Impersonal teaching machines may be preferable to conventional classroom teaching. (13 refs.) - *J. M. Gardner.*

Park Hospital for Children
Oxford, England

420 De QUIROS, JULIO BERNALDO. Disturbances in the language of a child: The child who does not speak. *Clinical Proceedings of Children's Hospital of the District of Columbia*, 25(7):192-205, 1969.

Delay of speech is one significant sign in the language disturbances of children; frequently, various conditions attributed to speech delay are classified as autism, MR, congenital aphasia, and peripheral deafness. These diagnostic groups have value from a clinical viewpoint for they suggest treatment regimens. Pediatricians should direct their interviews toward obtaining material relevant to the child's behavior, communication, and infantile conditioning. Early detection is important, and children with delayed speech should be seen for a comprehensive diagnostic study and evaluation by specialists in order to provide the child with the opportunity for re-education. Maturative central deafness and integrative central deafness are two stages of brain-stem deafness which should be carefully explored in young children. (31 refs.) - *S. Half.*

Universidal del Salvador
Buenos Aires, Argentina

DEVELOPMENTAL ASPECTS--PSYCHODIAGNOSTICS

421 SILVERSTEIN, A. B. The measurement of intelligence. In: Ellis, Norman R., ed. *International Review of Research in Mental Retardation: Volume 4*. New York, New York, Academic Press, 1960, p. 193-227.

Research relating to the measurement of intelligence of the MR is reviewed in relation to 3 major psychological scales: the Stanford-Binet (S-B) Intelligence Scale, the Wechsler Adult Intelligence Scale (WAIS), and the Wechsler Intelligence Scale for Children (WISC). The problem of validity is related to the fact that, other than intelligence tests themselves, there is no existing measure to use as a definitive criterion of intelligence. Comparison among these 3 scales is difficult due to the heavy verbal weight of the S-B items. Also the standard deviation (SD) of the S-B is 16 while the WISC and WAIS have SDs of 15. Results of studies show that the correlations of the S-B with the WISC or WAIS Verbal Scales are higher than correlations with their Performance or Full Scale Scores. The mean of the S-B is lower than that of the WISC or WAIS. Data indicate that the WAIS is not "functionally equivalent" to the S-B and the WISC. Studies indicate that both the S-B and the WISC appear to have satisfactory test-retest reliabilities, but evidence for long-term constancy of the IQ is equivocal. There is a negative relationship between anxiety and performance on an intelligence test. Age, length of institutionalization, sex, ethnicity, and anxiety are factors which should be considered in testing

research. Some psychologists when applying the S-B to the MR population extend the range of testing. Factor analysis of the WISC and WAIS has showed a factor loading by Arithmetic, Digit Span, and Coding subtests for MRs but not for normals. Development of new standardized tests within the framework of Piaget and Guilford theories should provide alternative approaches to the measurement of intelligence. (125 refs.) - *B. Bradley.*

422 LOVE, HAROLD D. Psychological evaluation of the mentally retarded. In: Love, Harold D., ed. *Teaching the Educable Mentally Retarded*. Berkeley, California, McCutchan, 1968, Chapter 2, p. 43-62.

A number of areas must be assessed to obtain a valid, reliable, and effective evaluation of an MR child. The primary concern of the psychologist should be the evaluation of intellectual capacities, personality characteristics, academic abilities, and special skills and interests. A wide variety of intelligence tests is available for the assessment of cognitive functioning; these should be selected to meet the needs of the individual child. Individual, rather than group personality tests which do not depend on reading and writing, should be used with MRs. Projective techniques are valuable in evaluating personality and identifying behavior patterns. Achievement tests provide a measure of actual performance regardless of IQ and can be used to identify reading disabilities and areas of difficulty in specific subjects. Since aptitude tests set the limits on what a person will achieve when given an opportunity and a good training program, accurate aptitude assessment should be used to plan a purposeful program for the MR child. These tests measure aptitude in such areas as music, science, vocational, and mechanical aptitude. Interests motivate the child in specific activity patterns and should be evaluated by observing the individual, obtaining his expressions of interests, studying his present activities, and measuring his interests with an interest inventory. (20 refs.) *J. K. Wyatt.*

423 CABANSKI, STANLEY. Psychological diagnosis and evaluation of the severely retarded: A pragmatic approach. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Mental Health Department, 1969, p. 11-18.

In spite of the many limitations of intelligence tests, psychological diagnosis and evaluation can contribute to the understanding, planning, and programing for SMRs, especially when it focuses on what an individual can do. In addition to an IQ score, an intellectual evaluation should provide a differential evaluation of perceptual, motor, linguistic, and cognitive abilities. Psychological reports should provide specific, concrete understandable data regarding individual capabilities and limitations, as well as information on motivational, emotional, and interpersonal factors. Exploration of the underlying causes of test-item failures by "testing the limits" can provide important, specific data on an individual's capabilities. (10 refs.) - *J. K. Wyatt.*

424 ILLINGWORTH, R. S. Assessment for adoption, a follow-up study. *Acta Paediatrica Scandinavica*, 58(1):33-36, 1969.

Assessing an infant's IQ in regard to his suitability for adoption is possible though the obtained IQ is not necessarily indicative of future achievement. To determine if methods used to assess an infant's IQ for adoption were effective, 192 healthy infants from institutions and foster homes were assessed (156 at 6 mos and again at 10 mos if there were doubts and 36 in their second yr). Developmental histories and physical examinations were compiled. Infants were rated above average, average, doubtful with MR possible, and MR. The IQs of the same children were obtained at ages 6 or 7. Those rated above average had a mean IQ of 109.1; those rated average had a mean IQ of 107.3; those rated doubtful with MR possible had a mean IQ of 99.8; and those rated as MR had a mean IQ of 84.1. Almost all the infants rated MR were so rated at the 6-month examination. A mean IQ of 100.1 was found for 21 infants having a MR parent and shows that these children should not necessarily be rejected for adoption. (3 refs.) - *M. Plessinger.*

University of Sheffield
Sheffield, England

425 SMITH, W. LYNN; & PHILIPPUS, MARION JOHN, eds. *Neuropsychological Testing in Organic Brain Dysfunction*. Springfield, Illinois, Charles C. Thomas, 1969, 337 p.

The emphases of this overview of neuropsychological assessment in cortical brain dysfunction are on the variety of approaches and methods, the interpretation of meanings, and the application of findings. Discussions of a neuropsychological framework, conceptual problems in the study of cortical function, and the validity and reliability problems involved in effective test construction are included. In addition to a consideration of general testing, studies of specific cortical sites and lateralization, the localized effects of cortical brain dysfunction on language and visual functions, and the relation between subcortical studies and cortical functions are discussed. Psychological tests are compared to clinical and electrical tests, and clinical research involving drugs is described. Clinical problems and procedures involved in test application and interpretation under varying conditions are considered. The use of cortical function evaluation in litigation is discussed. A selected reference list of pertinent literature on contemporary major tests of cortical impairment contains a listing of tests used in cortical function evaluations and selected references for each test. This book would be of interest to psychologists, neurologists, pharmacologists, attorneys, neuropsychologists, pediatricians, nurses, and neurosurgeons.
(535 refs.; 351-item bibliog.) - *J. K. Wyatt.*

CONTENTS: Neuropsychology in the Local Diagnosis of Brain Damage (Luria); Ambiguities in Concepts and Studies of "Brain Damage" and "Organicity" (Smith); The Validity of Some Psychological Tests of Brain Damage (Yates); Psychological Testing in Clinical Neurology (McFie); Patterns of Cognitive Test Performance as Functions of the Lateral Localization of Cerebral Abnormalities in the Temporal Lobe (Meyer & Jones); Behavioral Effects of Lesions of the Frontal Lobe in Man (Halstead); Intellectual Functions in Patients with Lateralized Frontal Tumors (Smith); Certain Hypothesized Hemispheric Differences in Language and Visual Function in Human Adults (Smith); Psychological Test Performance as a Function of Lateral Localization of Cerebral Lesion (Heilbrun); The Relationship between Visuo-Spatial Impairment and Constructional Apraxia (De Renzi & Faglioni); Psychological Studies in Parkinsonism: Effects of Subcortical Surgery (Riklan & Levita); Clinical, Electrical and Psychological Tests and the Diagnosis of Organic Brain Disorder (Fjeld, Small, Small & Hayden); The Rorschach Inkblot Method in Organic Disturbances of the Central Nervous System (Piotrowski); The Role of the Cortical Function Laboratory in the General Hospital (Smith); Dynamics of Cortical Function Assessment (Smith); Atypical Diagnostic Conditions (Philippus); Psychometric Study of Children with Learning Problems and 14-6 Positive Spike EEG Patterns, Treated with Ethosuximide [Zarontin™] and Placebo (Smith, Philippus, & Guard); The Effects of Ethosuximide [Zarontin™] on Intellectual Functions of Children with Learning Deficits and Cortical Brain Dysfunction (Smith & Weyl); Court Testimony by a Psychologist on the Question of Brain Damage (Towey); Use of Cortical Function Testing in a Personal Injury Trial (Deikman); Whiplash: Victim or Victimizer? (Smith); Psychometric Instruments for Detection of Brain Damage (Smith).

426 WHITING, H. T. A.; JOHNSON, G. F.; & PAGE, M. The Gibson Spiral Maze as a possible screening device for minimal brain damage. *British Journal of Social and Clinical Psychology*, 8(2):164-168, 1969.

The Gibson Spiral Maze (GSM) was used as a screening device for the detection of brain damage in 50 retarded (IQ 68) and 50 normal 10-year-old children. The GSM error score correlated significantly with 3 other measures of brain damage (Graham & Kendall Memory for Designs Test, Stott Test of Motor Impairment, and Garfield's Motor Impersistence Test); the GSM time score did not correlate with these tests. This was true for retardates and normals. Of the 15 retarded Ss classified as "slow and careless" by the GSM, all were identified in at least one of the other tests, and more than 70% were identified by all 3 tests. (10 refs.)
J. M. Gardner.

Leeds University
Leeds, England

427 De CASTRO, FERNANDO J.; VAUGHN, KENNETH L.; & GIBSON, RALPH M. A rapid screening psychometric test. *Clinical Pediatrics*, 8(5):258-262, 1969.

The Kent Emergency Scale (KES) is a reliable test for mental age and can be utilized by pediatricians in an outpatient setting. The scale, which is administered orally by asking questions graded according to patient age (5 to 14+), was presented to 2 groups of 40 children. For one group, it correlated +0.78 with formal tests (Stanford-Binet, Leiter, or Wechsler Intelligence Scale for Children) administered by a clinical psychologist, and for the other group it correlated +0.79 with

the Ammon Quick Test administered by the same pediatrician who administered the KES. (23 refs.) - *E. L. Rowan.*

Department of Pediatrics
Ann Arbor, Michigan 48104

428 HALL, LEON P.; & LaDRIERE, LaVERNE. Patterns of performance on WISC similarities in emotionally disturbed and brain-damaged children. *Journal of Consulting and Clinical Psychology*, 33(3):357-364, 1969.

Analysis of patterns of performance by emotionally disturbed (ED) and brain-damaged (BD) non-institutionalized children on the Weschler Intelligence Scale for Children (WISC) Similarities Subtest showed that the BD Ss, especially boys, produced more restrictive errors but the ED Ss made more inadequate attempts at conceptualization. Frequency of descriptive kind errors and positive correct responses were similar for the 2 populations. The BD Ss were classified on the "basis of probable physiological trauma due to injury and illness as well as developmental and behavioral signs of organicity." The ED Ss had bizarre or abnormal behavior, disturbed development, and a history of traumatic events. The 120 ED Ss and 120 BD Ss were matched on WISC Full-Scale IQ, CA, and sex and were analyzed for error type. Subgroups were also used for additional comparisons. All protocols were scored by 2 psychologists. Spence's error analysis approach was applied in this study. Results show that the C-error category occurred more often in the ED Ss than in BD Ss when sexes were combined and when each sex was considered separately. Interpretation of these data lends support to Spence's data and indicates that expansive error is related to nonorganic psychiatric groups. Restrictive errors occurred more frequently in organic boys; this category is in need of additional validation due to the restrictive error frequency of the psychiatric girls. Analysis of data indicated that C error is a function of IQ and CA. (12 refs.) - *B. Bradley.*

Oakland Schools
Pontiac, Michigan 48053

429 REINARTZ, A.; & SEIFART, O. *Profilauswertung des Hamburg-Wechsler-Intelligenztests fuer Kinder (HAWIK)* (Profile Evaluation of the Hamburg-Wechsler-Intelligence Test for Children [HAWIK]). Berlin-Charlottenburg, West Germany, Carl Marhold, 1968, 12 p. DM 8.50.

The polygon profile evaluation graph makes possible a graphic presentation, without numbers, of the results of the Hamburg-Wechsler-Intelligence Test for Children (HAWIK). It visually depicts variations of test results from the mean value of total value points of the entire population between the ages of 6 to 16 of all grade schoolers in the same CA group and from the significant distribution spread of the mean values of MR students. It also graphically separates the results of 6 verbal and 5 activity subtests and enables graph line depiction and comparison of total IQ, verbal IQ, and activity IQ results. The simplicity, independence from numbers, and ease of comprehension afforded by this type of profile presentation are factors which point-up its usefulness to school and special education officials, school psychologists, educational advisers, researchers, and all who administer intelligence tests. (8 refs.) *S. P. Glinsky, Jr.*

430 HENDERSON, NORMAN B.; BUTLER, BRUCE V.; & GOFFENEY, BARBARA. Effectiveness of the WISC and Bender-Gestalt test in predicting arithmetic and reading achievement for white and nonwhite children. *Journal of Clinical Psychology*, 25(3):268-271, 1969.

The Wechsler Intelligence Scale for Children (WISC) and the Bender-Gestalt (BG) were given to 120 white and 84 nonwhite (95% black; 5% Oriental or American Indian) 7-year olds in an attempt to predict reading and arithmetic grade levels as measured by the Wide Range Achievement Test. A pediatric examination of the Ss revealed no significant neurological differences between the groups; 14 whites and 14 nonwhites were rated as "suspect or abnormal." Both the WISC and BG scores differentiated the normal and nonnormal groups; the reading and arithmetic scores did not differentiate the groups. Whites performed better than nonwhites on the WISC, BG, and arithmetic test, but not on the reading test. WISC and BG scores were significantly related to reading and arithmetic levels; however, when the effect of intelligence was statistically partialed out, BG scores added very little to the relationship. (7 refs.) - *J. M. Gardner.*

University of Oregon Medical School
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431 MUELLER, MAX W. Validity of six tests of ability with educable mental retardates. *Journal of School Psychology*, 6(2): 136-146, 1968.

Six tests of learning ability were administered to EMRs (63 boys, 38 girls; mean CA 9 yrs) to evaluate their validity for prediction of ability. The tests included the Primary Mental Abilities Test (PMA), the Stanford-Binet (S-B), the French Pictorial Test of Intelligence (PTI), the Illinois Test of Psycholinguistic Abilities (ITPA), the Coloured Progressive Matricies (CPM), and the Peabody Picture Vocabulary Test (PPVT). The tests were correlated with achievement and learning task criteria, intercorrelated, and subjected to multiple regression analysis. Results showed that the PMA, S-B, PTI, and the ITPA are equally valid and superior to the CPM and the PPVT. (21 refs.) - *A. Huffer.*

No address

432 SALVIA, JOHN. Four tests of color vision: A study of diagnostic accuracy with the mentally retarded. *American Journal of Mental Deficiency*, 74(3):421-427, 1969.

One-hundred institutionalized retardates were given 4 tests of color blindness to determine the consistency of the diagnosis derived from each. The 4 tests identified different proportions of the children as color blind and differed significantly in their intercorrelations. It was concluded that the tests lacked validity when used with the MR. (19 refs.) *Journal abstract.*

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433 CO HE, SIMONNE. KaRo Test and the Rorschach Test. *Cahiers de Psychologie*, 10(3-4):145-150, 1967.

The Rorschach test and the Japanese KaRo Test (given 3 months later) were administered to 30 MR girls (CA 13-16 yrs; mean IQ 69). The Japanese test is similar to the Rorschach but has more detail, shading, and color. Although no definite conclusion could be drawn, the KaRo provoked more comment than did the Rorschach. The 2 tests in combination would be effective in psychodiagnostic investigations. (No refs.) - *A. Clevenger.*

No address

434 Di LEO, JOSEPH H. *Young Children and Their Drawings*. New York, New York, Brunner/Mazel, 1970, 386 p. $12.50.

The spontaneous drawings of children from 13 months to 6 years of age display a progression toward maturity (from kinesthetic scribbling to representation); the child draws as he subjectively experiences the world and not as he objectively views it. Part I of this volume traces the development of the body image. This is essential to understanding immaturity as opposed to abnormality. Part II examines the drawings of the unusual and deviant child (MR, cerebral palsy, cerebral dysfunction, communication disorder, and personality disorder). Children's drawings of their families are highly revealing of the child's personality and self-concept. The Goodenough Draw-A-Man Test is the only culture-free intelligence test and points up universal trends in development. Children should never copy except in tests of perceptual-motor skills. The author, a pediatrician interested in child development, has produced a profusely illustrated volume which should be of interest to anyone concerned with the development of the child's self-concept and view of the world around him. (46 refs.) *E. L. Rowan.*

CONTENTS: Procedure; Developmental Sequences; Earliest Drawings: The Kinesthetic Stage; Transition from Kinesthetic to Representational Drawing; Representation not Reproduction; The Human Figure Evolves: Primacy of the Head, the Trunk Appears, the Mixed Profile, the Profile; Fluctuations; Drawing What is Known to Exist; Past and Present; What is "Wrong" in Children's Drawings; Drawing Before Writing; Development of Graphic Expression in Mankind and in the Individual; Male and Female: Awareness of Sex; Drawings as Diagnostic Aids: Drawing the Family; Omission and Over-Emphasis; The Mentally Subnormal; Cerebral Palsy; Syndromes of Cerebral Dysfunction; Communication Disorders: Sensori-neural Hearing Loss, Central Language Disorders, and as Manifestations of Personality Disorders; Use of Children's Drawings in the Study of Personality; Personality Disorders; Conclusion.

435 GRAHAM, JAMES T. Signal magnitude and frequency of response in GSR audiometry. *American Journal of Mental Deficiency*, 74(3): 397-400, 1969.

A paradigm that allowed measurement of responsiveness to various signal levels in a galvanic skin response (GSR) experiment was

used to evaluate the hypothesis that normal and MR Ss would exhibit significant differences in responsiveness at low sensation levels. This hypothesis was supported by the data obtained for the 5 to 20 db sensation-level range, but not for other levels. A group threshold value was attained at approximately 5 db for normals and 25 db for retardates. These results are interpreted as indicating that GSR audiometry is not a reliable estimator of behavioral thresholds for the MR. (7 refs.) - *Journal abstract.*

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436 FOSTER, RAY; & NIHIRA, KAZUO. Adaptive behavior as a measure of psychiatric impairment. *American Journal of Mental Deficiency*, 74(3):401-404, 1969.

A sample of 260 psychiatrically impaired institutionalized adult retardates were rated on Parts I and II of the Adaptive Behavior Check List. The sample consisted of patients classified as "No further psychiatric impairment" other than retardation; "Behavior reaction"; and "Psychotic reaction." The 3 diagnostic groups were further subdivided into high and low functioning levels on the basis of their score on Part I of the check list. Six domain scores from Part II of the check list significantly discriminated between diagnostic groups, even though the groups were equated on IQ and general functioning leval. (12 refs.) - *Journal abstract.*

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437 NIHIRA, KAZUO. Three factors of adaptive behavior in mentally retarded children, adolescents, and adults. In: *Proceedings of the 77th Annual Convention of the American Psychological Association, Volume 4, Part 2*, 1969, p. 777-778.

The Adaptive Behavior Checklist was used to rate a heterogeneous group of 1,232 institutionalized MRs (CA range 8-55 yrs), and separate factor analyses were performed for 4 age groups (preadolescent, early adolescent, late adolescent, and adult) to compare factor structure at different levels of maturation. The significant factors which repeatedly emerged at different age levels were personal independence, social maladaptation, and personal maladaptation. Personal independence was defined as those behavior domains which represent the skills and abilities required to maintain personal independence and the behavior domains that suggest the presence of autonomy or motivation to manage personal affairs. Social maladaptation involved destructiveness, rebelliousness, untrustworthiness, antisocial behavior and manners, and psychological disturbances related to negative attitudes toward the social environment. It represented a general dimension of extrapunitive antisocial behavior. Personal maladaptation included socially unacceptable manners, stereotyped behavior, self-abusive behavior, and peculiar and eccentric habits. It represented a general dimension of intropunitive maladaptation. Low coefficients of congruence between the personal independence and social maladaptation factors within the 4 age groups demonstrated that these factors were clearly independent for this sample. MRs with behavior disorders appeared to exhibit either social or personal maladaptation, and these response patterns were found in mixed form only during early adolescence. The emergence of personal independence as a separate factor suggests that MRs with equal skill levels and abilities are not necessarily equal in emotional maturation. These data indicate that a unidimensional system of adaptive behavior is inadequate and inefficient. (10 refs.) *J. K. Wyatt.*

438 CHAMBERS, WILLIAM R. Use of social competency devices in programs for the mentally retarded. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Mental Health Department, 1969, p. 19-25.

Social competency scales may be used for goal setting and evaluation when training efforts are designed to develop social behaviors in the MR. The Vineland Social Maturity Scale is a standard schedule of normal development which evaluates 8 areas of social development. Although the areas are not independent and pattern analysis is not feasible, the scale does allow for the identification of marked developmental discrepancies. The Residential Development Check List provides an assessment of 5 areas and can be used to individualize training programs, maintain a progress record, and evaluate training methods. Research on the Cain-Levine Social Competency Scale indicates that this scale is of some value in the prediction of survival in TMR classes. Although the TMR Performance Profile lacks standardization, its quality is adequate, and it is the most comprehensive social maturity scale now available. The data it provides may be used as a guide to goal setting and classroom evaluation. (13 refs.) *J. K. Wyatt.*

439 COLEMAN, HOWARD M.; & DAWSON, SARAH TAYLOR. Educational evaluation and visual-perceptual-motor dysfunction. *Journal of Learning Disabilities*, 2(5):242-251, 1969.

Intellectual, achievement, and readiness tests are measures of performance which are open to the dangers of misinterpretation and misuse. While these tests are useful in predicting school success, they provide little information as to the abilities necessary to avoid failure. This is especially true for children with visual-perceptual-motor handicaps. However, intensive examination of performance on tests such as the Stanford-Binet and the Wechsler Intelligence Scale for Children can provide useful information. (8 refs.) - *J. M. Gardner.*

No address

TREATMENT AND TRAINING ASPECTS--EDUCATION

440 LOVE, HAROLD D., ed. *Teaching the Educable Mentally Retarded*. Berkeley, California, McCutchan, 1968, 314 p. $5.95.

Practical information, theoretical statements, and research findings on the problems of teaching EMR children are presented. A psychological evaluation should be followed by educational planning and post-school training. Historical data on MR emphasize: the early contributions of Itard, Seguin, and Montessori; the recent progress initiated by the National Association for Retarded Children and John F. Kennedy; and the development of professional organizations such as the American Association on Mental Deficiency and the Council for Exceptional Children. Descriptions of an integrated life experience curriculum, the use of Outcomes Charts, specific curriculum content, and a vocational work-study program are included. Literature on parental attitudes toward the MR is reviewed and demonstrates needs for parent counseling, parent education regarding MR, and community acceptance of MRs. This book would be of interest to special educators, psychologists, and parents of MRs. (10 refs.; 108-item bibliog.) - *J. K. Wyatt.*

CONTENTS: Overview of the MR (Love); Psychological Evaluation of the MR (Love); Historical Survey of MR (Love); Itard, Seguin, and Montessori Revisited (Cantrell); Curricular Approaches (Love); Curriculum and Methodology for Teaching the MR (Henderson, Holder, & Stewart); Parental Attitudes Toward MR Children (Love); The Habilitation of the EMR through High School Work-Study Programs (Chin).

441 CANTRELL, VIRGINIA. Itard, Seguin, and Montessori revisited. In: Love, Harold D. *Teaching the Educable Mentally Retarded*. Berkeley, California, McCutchan, 1968, Chapter 4, p. 79-127.

The philosophies and teaching methods of Itard, Seguin, and Montessori proved therapeutic in the education of MR children. In 1799, Itard began a 5-year program to educate Victor, an 11- or 12-year-old boy who had lived in the forest and was completely uneducated. Itard's program sought to interest the boy in social life, awaken his nervous sensibility, extend the range of his ideas, teach him to speak, sharpen auditory and visual perception, and teach him to read and write. Victor became socialized, affectionate, and sensitive, and he learned to read and write a few words. Although development of expressive language was minimal, he did develop inner and receptive language. Seguin was a student of Itard who developed the physiological method and successfully used it to teach MRs. This method emphasized muscle and sense training; individualized education; and plain, harmonious training for the whole child. Maria Montessori developed materials which enabled MR children to perform academic activities previously considered beyond their capacities. She was a disciple of Seguin, and her psychological method emphasized individualized instruction, practical activities, and exercises. The principles of the psychological method included independence training, the training of one sense function vicariously from another in physically disabled children, and the adaptation of the educational process

to the child's interests and mental age. (9-item bibliog.) - *J. K. Wyatt.*

442 LOVE, HAROLD D. Curricular approaches. In: Love, Harold D., ed. *Teaching the Educable Mentally Retarded.* Berkeley, California, McCutchan, 1968, Chapter 5, p. 129-206.

The Outcomes Chart developed at Colorado State College is an integrated life experience approach to a curriculum for the MR. The sequence followed in the construction and teaching of an integrated life experience curriculum is to establish clearly stated general goals and objectives, outline the content of the curriculum, develop clear statements of specific outcomes desired, and design curriculum methods. The Charts include cores of learning experience in arithmetic, socialization, communication, safety, health, and vocational competencies. Developmental data are listed for each area at preschool, primary, intermediate, prevocational, and vocational age levels and provide an outline of what the teacher should attempt to accomplish for each age at each level. Patterns of successful student teachers of mentally or physically handicapped children which have been identified include: the well-adjusted, emotionally stable person who is able to successfully cope with difficult special class situations; the teacher with great physical energy and the vitality and enthusiasm needed to meet the demands of a special class; and persons with high scores on measures of intelligence and scholastic achievement who have favorable attitudes toward teaching and children. (10 refs.) - *J. K. Wyatt.*

443 HENDERSON, SHIRLEY; HOLDER, LORETA; & STEWART, MARY K. Curriculum and methodology for teaching the mentally retarded. In: Love, Harold D., ed. *Teaching the Educable Mentally Retarded.* Berkeley, California, McCutchan, 1968, Chapter 6, p. 213-271.

To develop a curriculum, the teacher must: have a basic educational philosophy; possess an awareness of the child's society and its demands; emphasize the individual's personality and social development; analyze the student's present potential; be able to make realistic value judgments regarding the child's future capabilities; and establish long-range, intermediate, and short range goals for the student based on individual growth and development. The emphases of the integrated life approach curriculum are that children learn those things best which they actually experience and that learning should follow a developmental sequence. Curriculum in 7 areas of living have been developed for institutionalized MR children. These areas include communicative skills, social skills, health and safety, community resources and civic responsibility, economic competencies, recreation, and pre-vocational skills. Instructional levels frequently used with MR children are pre-primary, primary, intermediate, secondary, and post-school. Reading programs for the MR can employ a 2-tract system consisting of reading for safety and protection or reading for information and pleasure. Formal writing is not taught until the intermediate level; however, prewriting skills should be initiated at the preprimary level. Spelling should not be introduced until the mechanics of writing have been acquired, and its content should be closely related to that used in reading and writing. Arithmetic teaching should be devoted to the systematic development of some of the quantitative skills and should adhere to integrated life situations. Concepts should be presented within the child's comprehension level, and a concrete approach should be used. (22-item bibliog.; 10 refs.) - *J. K. Wyatt.*

444 COLLINS,JOSEPH; & THOMAS, MARY. *Slow Learners Need Special Classes.* Derry, Ireland, Derry Journal Press, 1967, 56 p. (Price unknown.)

Remedial education techniques for slow learners and MRs are discussed. The appropriateness and the use of diagnostic tests are evaluated. Arguments for special classes rather than remedial groups are given. Numerous diagrams and classroom situations are included. (No refs.) - *A. Huffer.*

445 CLEUGH, M. F. *The Slow Learner: Some Educational Principles and Policies.* Second Edition. London, England, Metheun & Company, 1968, 186 p. $3.00.

The discussion of the policies and principles underlying the organization of special education includes transfer and assessment of children, organization of classes in a special EMR school, special education in ordinary schools, and aspects of teacher training. Adequate and systematic assessment is the key to proper provision of special education and will eliminate some of the difficulties of special class organization. A TMR should not be admitted to a special school but sent to a Training Center. Special schools and special classes in ordinary schools are complementary and not interchangeable. EMR children belong

in special classes. Children who are not innately retarded but who are seriously behind their own potential should be given remedial education by transferring them from school to a remedial center or giving them help within their own school. Regardless of the excellence of policies, success depends on the quality of the teachers; therefore, teachers should have an adequate background in teaching methods for all basic subjects and be able to accept individual differences. A campaign should be waged against the giving of the most difficult classes to the least experienced teachers. (20 refs.)
C. L. Pranitch.

CONTENTS: Ascertainment; The Organization of Classes in ESN Schools; Reorganization in ESN Schools; De-ascertainment; Seriously Handicapped Children; The Setting and Scope of the Problem in Ordinary Schools; "Ordinary" Educational Treatment; Methods of Providing Special Educational Treatment in Ordinary Schools; Remedial Measures; A Note on the Training of Teachers.

446 MURAKAMI, E.; OGINO, S.; & TOMIYASU, Y. A study of teaching patterns in special classes for the mentally retarded. *Japanese Journal of Educational Psychology*, 15(2):11-20, 1967.

Teaching patterns of teachers of MR children were studied by using an observation rating system. Factor analysis (Q technique) revealed 2 patterns--one was characterized by an emphatic and intimate pupil-teacher relation and the other contained authoritative and rigid patterns of teaching. (No refs.)
A. Huffer.

No address

447 LEBENSHILFE PEDAGOGICAL COMMITTEE OF THE FEDERAL UNION. Zur Ordnung von Erziehung und Unterricht an Sonderschulen fuer geistig Behinderte: Empfehlungen NR. 18-34 (The ordering of education and instruction in special schools for the MR: Recommendations Number 18-34). *Lebenshilfe*, 6(4): 188-192, 1967.

Specific recommendations for education and instruction at *Lebenshilfe* special schools for MRs are given. These recommendations include direction by qualified, trained personnel, the establishment of county-wide special schools, school enrollment at the normal age with delays only when necessary, special measures to be taken with those with additional handicaps, proper class size, minimum number and type of rooms required for a 3 to 6 grade school, promotions based upon readiness with final written evaluations in lieu of grades, special transportation, personal consultation with parents and guidance of their efforts at home, development of a pre-first grade class, establishment of a vocational class, freedom of the school director from class load, special training for personnel in MR pedagogy, careful development of class work plans and periodic reevaluations of programs and progress, location of the school in the proximity of a regular school with the size of the school to be no less than 18 and no more than 100 students. (No refs.) - *S. P. Glinsky, Jr.*

No address

448 SCHEERENBERGER, R. C. Nursery school experiences for trainable mentally retarded. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Mental Health Department, 1969, p. 47-60.

Nursery school programs for TMR children should emphasize the development of: emotionally secure, socially adaptable children; oral language; basic health, self-care, and personal grooming habits; and a foundation for continued growth in social and vocational areas. Piaget's theory on the emergence of symbols and the process of assimilation suggests that nursery schools should provide a wide range of experiences and opportunities which allow the child to experiment and develop a sense of curiosity. Methodological principles inferred from Piaget indicate that teachers should: be specific, direct, and concrete; introduce one activity at a time; and program instructional material into specific identifiable substeps which allow for sequential progress. Teachers should be sure that the child is attending to the proper stimulus and minimize verbalization when giving directions. Operant conditioning principles have been used successfully with young moderately and SMR children. (21 refs.)
J. K. Wyatt.

449 WHEELER, MAXINE. A practical approach to teaching retarded children. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Mental Health Department, 1969, p. 61-65.

A practical approach to teaching is defined as the application of research, knowledge, and training to effect the best results in

the least amount of time. A positive approach should be used with MR children and should start with the child's present abilities and build from there. A physical education program is one basic approach which may be used to teach MRs. It should be adapted to the developmental level of each child. Clinical and therapeutic education should be provided for special disabilities. Physical education can increase feelings of well-being, interest and alertness, self-awareness, associative perceptive, effective intellectual potential, and motor-muscular coordination. A sequence of activities to develop motor competence should follow a definite hierarchy of development. The program should include: individual development and recreation; safety education; adequate diet; a proper balance between activity, rest, and recreation; parent counseling; and a periodic evaluation of each child and his program. (5 refs.)
J. K. Wyatt.

450 SAETTLER, PAUL. Programed instruction and the slow learner. In: Roucek, Joseph S., ed. *The Slow Learner*. New York, New York, Philosophical Library, 1969, p. 281-298.

Although most of the presently available programed instructional strategies and programs are more appropriate for the normal learner, programed instruction appears to be potentially one of the most effective methods for teaching the slow learner. A viable programed instructional approach for the slow learner should develop programs and materials which facilitate transition from one level of cognitive development to the next, provide reflective and problem-centered instruction, and explore new design and application approaches. Programed instruction should begin during the preschool years. Teacher education should include experience in the design, application, and experimentation of programed problems for the slow learner.
(22-item bibliog.) - *J. K. Wyatt.*

451 CONTRUCCI, VICTOR J. Educational services for the mongoloid. In: Wisconsin Association for Retarded Children. *Mongoloid Conference Proceedings*. (Conference of the Mongoloid Individual, His Family, and His Community, held April 10-11, 1968, Milwaukee, Wisconsin). Madison, Wisconsin, 1969, p. 19-26.

Generally, mongoloid children function in the moderately retarded range and participate in a full day program geared for the TMR. The teachers and programs should be consistent, be constructive, and set appropriate limits. Operant conditioning techniques should be utilized. Mongoloid children should be afforded every opportunity to participate in programing which will enhance their growth and development. (No refs.) - *S. Half.*

452 D'YACHKOV, A. I. Voprosy teorii obucheniya v spetsial'nykh shkolakh (Problems of the theory of teaching in special schools). *Spetsial'naya Shkola*, 2(128): 3-10, 1968.

The didactic principle of teaching determines teaching and learning, in correspondence with the goals of Communist education, in the formation and patterning of the assimilation of knowledge, wisdom, and habits of the pupils. In the theory of teaching atypical children, it is necessary to explain the children's problems in the light of contemporary requirements to include them in the production work force, and to recognize the peculiarities of their cognitive activity. Development of independent thought and the wisdom to use the perceived knowledge are the most important tasks of the special school. (4 refs.)
R. K. Butler.

Institute of Defectology
Moscow, Union of Soviet Socialist Republics

453 D'YACHKOV, A. I. Voprosy teorii obucheniya v spetsial'naya shkolakh (Problems of the theory of teaching in special schools). *Spetsial'naya Shkolakh*, 3(129):3-7, 1968.

The explanation of factors which would ensure the optimal conditions for the formation of the interaction of education and the development of the atypical child is one of the most important tasks of defectology. The unity of the educational process of basic knowledge and the formation of the personality is recognized as one of the basic tenets in educating the MR. A discussion is presented on the importance of organizing the educational material for presentation to the MR pupils, with special emphasis placed on visual aids. (No refs.) - *R. K. Butler.*

Institute of Defectology
Moscow, Union of Soviet Socialist Republics

454 PEKELIS, E. YA. Kliniko-pedagogicheskaya kharakteristika rebenka s zaderzhkoi razvitiya (Clinical-pedagogic characteristics of a child with retarded development). *Spetsial'naya Shkola*, 2(128):72-76, 1968.

A case history of retarded development (as opposed to oligophrenia) is presented. After administering anamnestic, physical, physiological, and psychological tests, a diagnosis was made of psychophysical infantilism. Infantilism is characterized by a lack of scholarly interest, undeveloped personality, inability to concentrate on problems, and behavioral disturbances. Since the S could read only syllable by syllable, the teacher taught him the meaning of the concepts sound, syllable, and word. The S learned to evaluate his own work and began to speak. After 6 months, the child had improved to the point where he was returned to a regular school under close supervision. (No refs.)
R. K. Butler.

Institute of Defectology
Moscow, Union of Soviet Socialist Republics

455 DUL'NEV, G. M. Aktual'nye problemy oligofrenopedagogiki [k itogam Pyatoi nauchnoi sessii po defektologii, sostoyavsheisya v marte 1967 g.] (Actual problems of teaching oligophrenics [results of the fifth scientific session on defectology held in March 1967]). *Spetsial'naya Shkola*, 2(128): 116-121, 1968.

An international meeting of Communist countries was concerned with methods of educating the MR (especially vocational education), their actual work potential, and formation of their personality. Sessions were held on the psychology of MR children and the clinical and pathophysiological study of MR children. The most discussed topic was the vocational education of remedial school pupils. Resolutions included the development of a more systematic information exchange, more particular creative scientific leadership in socialistic countries, and the creation of an information bureau for experimental data exchange with foreign countries. (1 ref.)
R. K. Butler.

Institute of Defectology
Moscow, Union of Soviet Socialist Republics

456 ALESEVICH, EUGENE. Physical defects and learning abilities. In: Roucek, Joseph S., ed. *The Slow Learner*. New York, New York, Philosophical Library, 1969, p. 23-44.

Increasing numbers of children with physical defects in the sensory and communication areas, crippling conditions, or chronic medical health problems are attending regular elementary schools with normal children. Buildings with special modifications and furnishings benefit all children and teachers. Many blind and partially-sighted children can attend a normal classroom and have the additional help of a specially-trained itinerant teacher who works individually with each child and advises the regular teacher regarding educational programs and resources. Although deaf and hard-of-hearing children are found in regular classrooms, the measured intelligence of deaf children is frequently below that of normal children because of their need to learn and adjust to special learning techniques. Until sufficient learning skills have been acquired and communication barriers reduced, it may be difficult to place a deaf child in a normal classroom setting. Speech therapy should be available for children with speech defects. Placement in a regular classroom depends on the length and severity of the speech defect. Crippled children have been selectively placed in normal classrooms when they have acquired sufficient learning abilities and mobility. Teachers of crippled children should emphasize basic skills, the development of self-reliance, and social and emotional adjustment. (41-item bibliog.)
J. K. Wyatt.

457 APOSTLE, CHRISTOS NICHOLOS. The slow learner's concepts' contribution to education. In: Roucek, Joseph S., ed. *The Slow Learner*. New York, New York, Philosophical Library, 1969, p. 1-22.

Although society has always been concerned about slow learners and interest in them has centered around their performance in individual- and group-centered activities, the slow learner did not become a critical educational problem until World War II. At this time, the cost of training slow learners and the need to train servicemen to use complex weapons in a short period of time aroused interest in a variety of areas. Currently, new avenues of exploration emphasize the concept of slowness rather than learning. Basic dimensions played by the concept of slowness are a reference value, a time role in which leadership is measured, a stigma, a life style, and a cognitive style. The increased life spans of people will require a change in

educational procedures to allow for continued exposure to education to provide relevant content for different age levels, and to identify the time in life when education reaches an optimal point in terms of learning. (23-item bibliog.) - *J. K. Wyatt.*

458 GUSKIN, SAMUEL L.; & SPICKER, HOWARD H. Educational research in mental retardation. In: Ellis, Norman R., ed. *International Review of Research in Mental Retardation: Volume 3.* New York, New York, Academic Press, 1968, p. 217-278.

Although preschool intervention programs have resulted in IQ gains, increased language development, improved fine motor proficiency, and increased academic achievement for the mildly MR, the significance of gains in IQ and language development have not persisted beyond the first grade. EMRs evidence poorer academic adjustment in special classes and poorer social adjustment in regular classes. Among the serious methodological problems in school achievement studies are inappropriate or biased sample selection, failure to specify whether special classes had a special program and were taught by competent teachers, and failure to use appropriate evaluation instruments. Traditional teaching methods have not been effective in teaching reading and arithmetic to EMRs. The individualized approach and diagnostic method are innovative curriculum approaches advocated for use with the MR. Evidence to support the widely held beliefs that MR school children are not as well adjusted as normal school children and that MRs adjust better in special classes is weak. The general school performance of MR children appears to be affected by socioeconomic status, parent and teacher expectations, and teacher attitudes and behavior. The social and economic status of the average EMR adult is lower than that of the nonretarded adult. Special education programs for TMRs have not facilitated school competency nor been of direct benefit to parents. Sheltered workshops are not appropriate placement for all adult TMRs, and school curricula should be revised to allow for the early identification of those TMRs who belong in sheltered workshops. The contributions of current research designs are of very little value for the educational practitioner. (108 refs.) *J. K. Wyatt.*

459 RENZ, PAUL; & SIMENSEN, RICHARD J. The social perception of normals toward their EMR grade-mates. *American Journal of Mental Deficiency*, 74(3):405-408, 1969.

This study compared the social perception and attitude of normal adolescents toward 2 types of grade-mates: normals and special class EMRs. Fourteen special class EMRs and 14 randomly selected normals were rated and described by 57 randomly selected normal grade-mates. Contrary to many previous findings, special class EMRs were not rejected with greater frequency than their normal grade-mates, normal Ss used the same variables to describe EMRs that they used to describe normals, and normal Ss used the same continua to perceive and describe EMRs that they used for other normals. (10 refs.) - *Journal abstract.*

Old Dominion University
Norfolk, Virginia 23508

460 HOFMANN, WILHELM. Das Problem der Zurueckschulung (The Problem of Returning to Regular School). *Zeitschrift fuer Heilpaedagogik*, 18(6):325-334, 1967.

Problems relating to the return to regular school of MRs occasioned a study of 210 MRs in Baden-Wuerttemberg (72% of all such cases) who had been returned to regular classes. Pertinent information was obtained from questionnaires completed by teachers (regular and special class), parents, and the MRs themselves. The results indicated a 78% successful adjustment of the returnees; the remainder either failed to adjust or experienced difficulties in individual subjects. The latter group came mainly from MR schools with relatively few grades. Further, all returnees encountered difficulties in mathematics and spelling, but no clear indicators of eventual success or failure emerged. Recommendations include earlier identification of MRs in regular schools so that they may be transferred earlier to MR schools, constant efforts by MR schools to return prepared MRs to the regular school, careful choice of the regular school class and teacher for the MR as well as proper time of return, minimum of at least 2 years of regular school work remaining before graduation, and retention of the MR teacher during the period immediately following return for counseling and helping the MR. (15 refs.) - *S. P. Glinsky, Jr.*

Eichelberger Weg 14
71 Heilbronn, West Germany

461 GERDY, DONALD F. The causes of dropouts and lapses in study. In: Roucek, Joseph S., ed. *The Slow Learner*. New York, New York, Philosophical Library, 1969, p. 357-373.

In spite of the fact that a high school diploma is needed in our society and school dropouts have difficulty finding employment, approximately 30% of American youth leave school before completing the twelfth year. The dropout is generally thought of as far below average in intelligence and socioeconomic level; however, there is a wide spread of dropouts along the intellectual, social, and economic scale. Intelligence does not appear to be the crucial factor in identifying dropouts. Among the causes of dropouts are school underachievement, financial difficulties, reading problems, lack of motivation or direction, lack of interest, school nonparticipation, dissatisfaction, lack of parental interest, lack of school friends, and marriage and/or pregnancy. Lack of motivation and interest are related to failure in academic studies, lack of participation in school-related activities, and discipline problems. Most of the studies of dropouts have not increased the understanding of nor solved the dropout problem because they concentrate on symptoms. The causes of dropout appear to be multiple and complex. (30-item bibliog.; 11 refs.) - *J. K. Wyatt.*

462 TORRE, M.; & ROVERA, G. G. Aspects de l'insuffisance scolaire dans les etats depressifs de la preadolescence (Aspects of school failure in depressive conditions of pre-adolescence). *Acta Paedopsychiatrica*, 36(11):346-351, 1969.

The authors present a personal etiology concerning 48 children between 10 and 14 years of age, suffering from a psycho-reactive depression. School failure was shown by a sudden decrease of the intellectual achievement, specific maladjustment or aggravation of school performance in the subnormal children. In 43 boys, the evolution has been followed; parallel with the improvement of the depressive symptomatology not only an amelioration of scholar productivity was shown, but also an increase of intellectual efficacy. (32 refs.) - *Journal summary.*

Universita di Torino
Torino, Italy

463 SCHWARZ, ROBERT H.; & SHORES, RICHARD E. The academic achievement of EMR students and social class. *American Journal of Mental Deficiency*, 74(3):338-340, 1969.

EMR students enrolled in special education classes were assigned to groups on the basis of age and social class. Four groups were formed as combinations of high and low social class as defined by Warner's scale and 2 age groups (9-10 yrs and 14-15 yrs). The reading and arithmetic achievement levels of the groups were measured and compared. In general, middle-class children were found to achieve at a higher level; a difference in reading skills appeared to increase as a function of age and social class. (9 refs.) *Journal abstract.*

University of Wisconsin
Madison, Wisconsin 53706

464 NELSON, C. MICHAEL; & HUDSON, FLOYD G. Predicting the reading achievement of junior high school EMR children. *American Journal of Mental Deficiency*, 74(3):415-420, 1969.

The validity of several psychological and personological variables as predictors of reading achievement with a sample of EMR adolescents was studied. It was found that Otis Beta IQ was the best single predictor of reading achievement scores. Otis IQ was not only significantly superior to Peabody Picture Vocabulary Test IQ as a predictor of achievement test scores, but also provided a better estimate of full-scale IQ. The practical and research implications of these findings are discussed. (21 refs.) - *Journal abstract.*

University of Kentucky
Lexington, Kentucky 40506

465 BACHMANN, WALTER. Die 5-Tage-Woche an einer Sonderschule fuer Lernbehinderte (The 5-day week in a special school for those with a learning handicap). *Zeitschrift fuer Heilpaedagogik*, 18(7):388-396, 1967.

Experience indicates that the 5-day school week employed in primary, secondary, and undergraduate level educational institutions can also be introduced into special schools for those with learning handicaps. This is

best accomplished by gradually extending half-day sessions and by giving parents a choice in its adoption in order to gain their confidence and allay their fears that full-day sessions would be substituting for or competing with the family. Personnel availability will determine the final form of the 5-day school week. Affiliation with a regular school will enhance the goals of intensified personal and group level contact for the MRs. (15 refs.) - *S. P. Glinsky, Jr.*

Ernst-Neeb-Strasse 12,
65 Mainz, West Germany

466 EDMONSON, BARBARA; LEACH, ETHEL M.; & LELAND, HENRY. *Social Perceptual Training and Community Living*. Freeport, New York, Activity Records, 1969, 249 p. Complete Kit $225.00. Book only $7.95.

The kit is designed to make portions of the activities of the adult world more comprehensible to the adolescent EMR. Specific objectives of the educational material are to make social cues clearer and interpretable and to illustrate the behaviors which would be appropriate in response to those cues. The kit consists of a book of 50 lessons, 425 photographic slides, sound tape, and 31 drawings for the preparation of quizzes and seatwork. Lessons, organized into weekly subunits, include making a good impression, getting and keeping a job, after hours, and shopping and buying. In the form of a verbatim teaching script, the lessons may be modified to extend from 1-2 hours. Supplemental activities are suggested for most lessons. A pre-kit and post-kit self evaluation questionnaire is provided for students. All lesson materials were tested in special education classes in public schools and in prevocational programs in state institutions with students showing improvement in comprehending the adult world. (9 refs.)
C. L. Pranitch.

CONTENTS: Introduction to Signals; Numbers as Signals; Places as Signals; Making a Good Impression; Shopping-Buying; A Big Store; Living on Our Own; Getting and Keeping a Job; After Hours; Getting Along with Others.

467 DISBROW, MARILYN; & BOGGS, MARGARET. Social activities for trainable teenagers. *Pointer*, 13(2):68, 1968.

Older TMR children (CA 15-21 yrs) require social practice such as that found in bowling, dancing, and dining activities. These social affairs helped the children develop adult social attitudes, good grooming, closer peer relationships, social outlets, and increased parental cooperation. (No refs.)
V. G. Votano.

Hazel Avenue School
West Orange, New Jersey

468 SCHIRMER, GENE. Implications of operant conditioning. *Pointer*, 13(2):54-56, 1968.

The behaviorist approach which utilizes operant conditioning offers many rewards to special education students and their teachers. This approach forces educators to look at teaching results objectively, because it is a scientific approach using control groups, pre- and post-testing, and statistical analysis. In order to use this method, the teacher must carefully observe the child to discover exactly what kind of behavior needs changing; the curriculum must be defined and the objective determined; the child must be thought of as an individual. The teacher has to be willing to give time and effort to supply positive motivation. Teachers who question the feasibility of operant conditioning programs are often concerned with the use of material rewards, but neither children nor many adults are willing to wait for long-term abstract rewards. Another concern of teachers is the use of extreme methods, such as electric shock or food deprivation; however, these methods are used only in severe cases and only after other much less traumatic techniques have been tried. (No refs.)
V. G. Votano.

Community School District
Wayne, Michigan 48184

469 COLWELL, CECIL. Teaching the profoundly retarded child through behavior shaping techniques. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Mental Health Department, 1969, p. 66-74.

A combination of operant and classical conditioning techniques was used to teach self-care behaviors to PMRs. The behavior-shaping training method was based on positive reinforcement. Tasks were broken down into parts; one part was taught at a time, and each improvement was rewarded. Teaching moved from the simple to the complex. Every effort was made to prevent failure. Personnel for this type of program need to be willing and able to adjust to new situations, stay on a schedule, maintain an even temperament, get along

with people, and keep an objective attitude. Behavior shaping is effective and works rapidly. It offers promise for the training of all levels of MRs. (11 refs.) - *J. K. Wyatt.*

470 SMITH, JOAN L. Reinforcement as a technique in teaching autistic children. *Deficience Mentale/Mental Retardation*, 19(1): 19-23, 1969.

Behavior modification techniques were applied to a group of 6 autistic boys (CA 4 to 11) over a 1-year period. The Ss were trained in a 1-to-1 setting in basic social skills, such as paying attention, eye-to-eye contact, and remaining seated. Later language training was instituted with the following of simple instructions emphasized. Social praise and food were used as reinforcers. Progress was noted for all the Ss. (No refs.) *J. M. Gardner.*

Children's Psychiatric Research Institute
London, Ontario, Canada

471 MOLLOY, JULIA S.; & WITT, BYRN T. Development of communication skills in retarded children. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Mental Health Department, 1969, p. 75-86.

The goal of language therapy for MR children is to help them develop usable everyday language. Areas which should be assessed to identify factors which may adversely affect the development of usable communication skills are hearing, condition of speech mechanism, environmental climate, symbolic functioning, and cognitive ability. A developmental scale which can be used to obtain information on a child's receptive and expressive language development is included. Children and adults who have communication problems and are served by day care centers for the MR may be categorized as: young nonverbal children with retarded development (CA usually 2 to 7 yrs), poor verbal children who evidence a lag between receptive and expressive language, and individuals with low cognitive functioning and very few communication skills. Therapy should be based on perceptual training and should proceed from learning to listen through attention which compels stimulation, to learning to listen and react, to learning to listen and respond, to learning to listen and produce appropriate verbal responses. (11 refs.) - *J. K. Wyatt.*

472 KENNEY, MARY W. Language development and stimulus in severely subnormal children. *Teaching and Training*, 7(1):9-15, 1969.

Because many training centers do not have a speech therapist, teachers in these centers need to encourage and stimulate communication in their MR students. Crying is the normal method of communication in infancy, and comfort and babbling sounds are the fore-runners of word imitation which occurs at 12 to 18 months of age. By about 18 months of age, most normal children begin to realize that everything has a name. From this realization, the child gradually becomes interested in verbal communication and acquires the words and grammar of his native language. In MR children, this progression is much slower; MRs with IQs of 15 to 25, babble at 25 months, say words at 54.3 months, and form sentences at 153 months. MRs with IQs of 51 to 70 babble at 20.8 months, say words at 34.5 months, and form sentences at 89.4 months. In addition, because their brain processes are lethargic, these children may have a tendency to remain at one stage unless stimulated. A teacher can help these children by initiating babbled sequences of sounds, by imitating everyday sounds in babbled form, by naming everyday items over and over to the child, by playing games, by puppetry, by teaching nursery rhymes, and by encouraging the child to communicate with him. Speech stimulus should always be attempted, even if positive results may not be seen for several months, because a child who is able to communicate verbally is more likely to continue to develop socially. Goals for each MR student should be realistic and relate to IQ, motivation, coordination, physical handicaps, and personal history. (6 refs.) - *M. Plessinger.*

No address

473 SHEHAN, LAWRENCE P. English for slow learners. In: Roucek, Joseph S., ed. *The Slow Learner*. New York, New York, Philosophical Library, 1969, p. 181-212.

Since slow learners are particularly sensitive to feelings of inferiority and are easily discouraged, the main job of the teacher is to provide continuous motivation. Their attention spans are short, and they require frequent changes in activities as well as persistent repetition. Each day's work should include reading, discussion, and grammar. Frequent drills build a needed sense of security. Explanations and problems should be presented in concrete, simple language, and new problems should not be presented until the problem and procedure are thoroughly

understood. Individual help should be provided to correct spelling errors, allow practice in oral English, increase motivation, and help the slower students. Since slow learners have great difficulty assimilating abstract ideas, grammar study should be limited to the basic and fundamental grammar needed for good usage in daily life; this should include sentence recognition, the basic uses of words in sentences, and sentence analysis. A combination of the ideas of basic and structural grammar is best for slow learners. Courses for ninth, tenth, and eleventh grade slow-learner English classes include descriptions of content, reading, and writing. (30-item bibliog.; 3 refs.) - *J. K. Wyatt.*

474 CLAUDEL, CALVIN. Stimulating the retarded reader. In: Roucek, Joseph S., ed. *The Slow Learner*. New York, New York, Philosophical Library, 1969, p. 299-316.

Retarded readers may be underachievers or emotionally disabled persons, and their disabilities may stem from a number of apparent and hidden environmental factors. Underachievers require stimulation and motivation to read to their full capacity, while disabled readers require a careful and expert analysis of their personal lives and backgrounds. A problem-related approach to remedial reading which uses materials that go to the root of the problem should be employed. Since accepted materials and approaches are often worthless, the remedial teacher must develop environmental motivation and teaching methods and course content related to individual needs. Environmental therapy may be used to induce a state of reading readiness in the maladjusted retarded reader. This can include recreation, play activities, or group therapy. Reading aloud should be used at all levels to identify problems that require special diagnosis and treatment and to enhance the development of confidence, rhythm, and speech. Machines and programed materials can be used to stimulate the retarded reader and should include a cognitive approach and multiple and multi-sensory media. Retarded reading can be reduced by teaching reading at an earlier age, providing an atmosphere of cultural activities and learning facilities conducive to reading, and increasing the numbers of adult reading and study groups. (28-item bibliog.; 46 refs.) - *J. K. Wyatt.*

475 TAUBER, ABRAHAM; & GOLDEN, JUNE T. The poor speller and reader. In: Roucek, Joseph S., ed. *The Slow Learner*. New York, New York, Philosophical Library, 1969, p. 317-326.

Poor reading ability can lead to scholastic retardation, impeded school adjustment, dropping-out of school, unemployability, personal frustration, and antisocial attitudes. Educational malpractice and social, cultural, and economic deprivation can contribute to poor learning. The techniques of teaching and learning conditions need to be improved, especially among the deprived. Spelling and unphonetic orthography of the English language represent major educational problems in reading. The Initial Teaching Alphabet and World English Spelling are new reading methods based on phonetic consistency. Research shows excellent progress and gains in reading ability with these methods. (7-item bibliog.; 8 refs.) - *J. K. Wyatt.*

476 PARK, ETHEL V. Practical uses of reading. *Pointer*, 13(2):35-37, 1968.

Environmental clues can be used to help intermediate special students in functional reading. First, objects in the classroom (such as doors, chalk, sinks, and clocks) are labeled. Then, signs are made of common words used. This procedure is continued at home, on the street, and in the community. (No refs.) - *V. G. Votano.*

Oak Ridge School
North Kansas City, Missouri

477 HERLEIN, RICHARD D. Creative writing. *Pointer*, 13(2):33-34, 1968.

The objectives of a program in creative writing for MR children should provide for self-expression, language development, vocabulary improvement, and self-concept improvement. Procedures should include planning for an extended time-block which the program will require, encouraging oral involvement, discouraging negativism of any kind, and providing a sharing period, possibly by using a tape recorder. (No refs.) - *V. G. Votano.*

Prairie Flower Special Education School
Washington, Iowa 52353

478 BARDIS, PANOS D. Mathematics and the slow learner. In: Roucek, Joseph S., ed. *The Slow Learner*. New York, New York, Philosophical Library, 1969, p. 245-262.

The most serious disabilities which affect the mathematics training of the slow learner are low transfer of learning, poor abstract thinking ability, poor comprehension and observation abilities, slow absorption of facts, lack of initiative, and poor ability to concentrate. Symptoms diagnostic of mathematical inadequacy are a low score on a standardized mathematics test, inability to solve problems, persistently inaccurate work, immature work habits, emphasis on guessing, absence of improvement with practice, use of unrelated or incorrect elements, limited vocabulary, and lack of practical application of knowledge. The arithmetic abilities of most slow learners will be between a third and fifth grade level of achievement. The current trend in mathematics teaching is moving away from a lecture-study approach to heuristic techniques which employ intuition and problem solving. Programs for slow learners should provide socially useful knowledge and use methods adapted to the students' mental level. The mathematics vocabulary should include concepts related to size, length, distance, location, time, money, and comparisons.
(21-item bibliog.; 27 refs.) - *J. K. Wyatt.*

479 SCHEMP, WALLACE F. Blanket math game. *Pointer*, 13(2):45, 1968.

A math game which consists of paper divided into 16 squares with a multiplication product in each, cardboard discs, and combination cards was devised to instruct EMRs. When the correct product is found on the sheet, it is covered with a disc, and the first child to cover all of the numbers calls out "blanket." (No refs.) - *V. G. Votano.*

E. Otis Vaugh Junior High School
Reno, Nevada

480 BLEIDICK, ULRICH. Rechenleistungen in Hilfsschulen und das Problem der Rechendidaktik (Mathematics performance in MR schools and the problem of mathematics instruction). *Zeitschrift fuer Heilpaedagogik*, 17(9):409-426, 1966.

Preliminary comparative studies of the mathematical ability and performance of normal and MR students in lower and upper grade school classes indicate the need for a clearly defined program of minimum mathematical goals for MRs. Quantitative results of 4 comparative studies which involved MR and normal students showed that the performance of ninth grade MRs in basic arithmetic skills was equivalent to fourth grade normal students. Qualitative results included an inconclusive comparison of head- versus written-calculations for MRs, a decrease in performance in applied reckoning as against pure reckoning with increasing CA, and a general superiority in applied reckoning over pure reckoning at all age levels. Incorrect answers were traced to wrong numbers, leaving out numbers, special types of MR and normal student errors, and individual errors. MR errors included slower figuring, a tendency toward concrete and simple treatment of problems, a mechanical approach, poor memory, and avoidance of difficulties. The results of a fifth study comparing mathematical and other skills showed an inverse relationship between test scores and final grades and no significant differences between mathematical performance and grammar, reading, and spelling. By indicating the actual mathematical level of MRs, these studies suggest a reduction of actual material taught to MRs, a more intensive mastery of elementary knowledge, a differentiated textbook, the adoption of minimal and specific skills to be mastered, a greater emphasis on mathematical work in upper grades, and an insistence upon accuracy in MR students' work. (39-item bibliog.;22 refs.)
S. P. Glinksy, Jr.

Von-Melle-Park 8,
2 Hamburg 13,
West Germany

481 NEAL, THOMAS. Drama builds confidence. *Pointer*, 13(2):46, 1968.

In order to build the confidence of slow learners, dramatic presentations of 1- or 2-act plays are helpful. By tape recording only those lines which, after practice, can be read satisfactorily, the entire play can be slowly constructed. (No refs.)
V. G. Votano.

Fairmont West High School
Kettering, Ohio

482 KEDERIS, ANTOINETTE. Dramatics emphasize good health habits. *Pointer*, 13(2):8-9, 1968.

After studying a unit on good health habits, EMR children presented a play in which the

eyes, ears, hair, teeth, good food, and exercise were portrayed by the children. The original play was written in verse; the simple props and costumes were constructed by the students. (No refs.) - *V. G. Votano.*

Central School
Springfield, Pennsylvania

483 FRERICHS, ALLEN H. Teaching social studies to the slow learners. In: Roucek, Joseph S., ed. *The Slow Learner.* New York, New York, Philosophical Library, 1969, p. 213-230.

Although federal funds are now available for enlarged school libraries and publishers are developing materials for slow learners, the most critical factors in teaching slow learners are the attitude and instructional skills of the teacher. Social studies education for slow learners can be improved if teachers revise and upgrade their teaching procedures to include the teaching of reading skills and the use of group activities, if teacher training programs increase their emphasis on the special needs of the slow learner, and if schools exhibit a willingness to change the structure and organization of social studies courses. History instruction should be contemporized, and the content of social studies should be analyzed in the light of the new knowledge about human behavior. When the problems-approach to social sciences is used with slow learners, fewer ideas should be presented, all students should be involved in the study of a problem, problems should be related to the lives of the students and broken down into manageable parts, and allowances should be made for poor reading skills and problem-solving abilities. To avoid discipline problems, teachers should use structured learning situations and firm but reasonably enforced rules of behavior, provide a variety of classroom activities, discuss current events, use community guest speakers, and be flexible. A structured day by day attack on reading skills as well as opportunities for and encouragement in independent reading will make social studies more meaningful for the slow learner. Student evaluation should be flexible and based on the totality of the student's work rather than on test performance alone.
(17-item bibliog.; 13 refs.) - *J. K. Wyatt.*

484 LANGE, ERWIN F.; & JORGENSEN, HAROLD C. Science teaching and the slow learner. In: Roucek, Joseph S., ed. *The Slow Learner.* New York, New York, Philosophical Library, 1969, p. 231-244.

New approaches to teaching science which deal more with processes than with outcomes offer great hope for the slow learner. Science curricula for the slow learner should be designed to teach them to become better observers and aware of the world around them, more skilled in recording and communicating their observations, and more skilled in the use of simple equipment. Programs should be planned around experiments that require a minimal amount of reading, and learning experiences should provide each student with some degree of success. School science activities should be related to the world outside the classroom. New materials which allow for several correct solutions increase opportunities for success and encourage students to seek alternate solutions. Science should be part of a planned program which begins in elementary school and continues through secondary school. If slow learners acquire self-confidence in school science programs, many of them can pursue vocational courses related to science in community colleges or find employment as laboratory technicians.
(21-item bibliog.; 3 refs.) - *J. K. Wyatt.*

485 KUBAIKO, JAMES H.; & *KOKASKA, CHARLES J. Driver education for the educable mentally retarded: Is our instruction adequate? *Training School Bulletin*, 66(3):111-114, 1969.

Some studies have presented information which questions the ability of the EMR to be successful drivers. Before we can discredit their ability to drive, we must first provide programs in driver education which are designed to meet the retarded's learning abilities. The results of a survey of high school driver education programs in Southeastern Michigan suggests that our efforts should be seriously questioned. (5 refs.)
Journal abstract.

*Eastern Michigan University
Ypsilanti, Michigan 48197

486 SMITH, FERNE A. A unit on the flag. *Pointer*, 13(2):26-28, 1968.

Showing respect for the flag, developing love for country, realizing the importance of laws,

and developing patriotism were the objectives of a study unit on the flag. These objectives may be achieved by a discussion of the meaning of the flag, the pledge of allegiance, patriotic songs and the national anthem, and the use of relevant books, filmstrips, and stories. (No refs.) - *V. G. Votano.*

Polkville School
Shelby, North Carolina 28150

487 SCHWARZ, ROBERT H. The mentally retarded and citizenship training: A survey. *Education and Training of the Mentally Retarded.* 3(2):63-66, 1968.

Polls and surveys reveal that EMR children are less knowledgeable than normal secondary school children about citizenship training and responsibilities. If the EMR are to assume effectively a responsible role in society, the educational system must provide an appropriate citizenship curriculum that includes pertinent information about the rights, freedoms, privileges, laws, and obligations of citizenship. A well oriented and structured educational program can contribute to the establishment of meaningful interpersonal relationships by the MR; it can assist them in making better work and community adjustments and help them to become useful and productive citizens. The MR should be given every opportunity to become well informed, so that they can develop healthier attitudes, ideals, and beliefs within a democratic framework. (6 refs.) - *S. Half.*

University of Wisconsin
Madison, Wisconsin 53706

488 CANADIAN ASSOCIATION FOR RETARDED CHILDREN. *Centennial Athletic Programme: Section II--Testing.* Toronto, Ontario, Canada, No date, 47 p.

The test and awards program of the Centennial Athletic Program provides teachers of TMRs with a means of evaluating and determining progress, criteria for the presentation of awards, and a built-in method of motivation. The program was developed by individuals with experience in physical education for TMRs and in a basic motor-perceptual development program. Test items are simple, require a minimum of equipment, and can be easily administered by classroom teachers. Test items for 4- to 7-year-old children identify degree of motor development, and those for children > 7 years of age provide a reliable measure of athletic performance. Compulsory tests for the latter group are speed sit ups, vertical jump, and 300-yard run. Compulsory tests for the younger group are balance, standing broad jump, back extension trunk exercises, and walking board. A time schedule is included. (No refs.) - *J. K. Wyatt.*

CONTENTS: General Principle Underlying the Test Program; Time Schedule for the Program; Test Descriptions--Conducting Tests; The Plan for Recording Scores; Awards.

489 CANADIAN ASSOCIATION FOR RETARDED CHILDREN. *Centennial Athletic Programme: Section III--Teaching Aids.* Toronto, Ontario, Canada, No date, 36 p.

These teaching aids are for use in a daily physical education program for TMRs. The program allows for individual differences and encourages the discovery of principles and concepts. General lesson plans for agility and games are described. Each lesson plan contains suggestions for an introduction, development, culmination, and quiet ending. The aim of each activity is clearly stated, and appropriate directions for the children and specific teaching tips are included. A list of the basic equipment necessary for the program is included as well as directions for its care and distribution. (No refs.) *J. K. Wyatt.*

CONTENTS: The Program Design; Planning the Environment for the Physical Education Period; General Lesson Plans; Sample Daily Lesson Plan.

490 CANADIAN ASSOCIATION FOR RETARDED CHILDREN. *Centennial Athletic Programme: Supplement to Section III--Teaching Aids.* Toronto, Ontario, Canada, No date, 37 p.

The physical education teacher should provide a variety of experiences which will help children to grow in understanding and control of their functional and expressive movements. The main principles of movement are body awareness, relationship, space awareness, and the qualities of movement; any one of which can be used as the starting point for a lesson or series. The development of movement ideas in young children begins with an exploratory stage during which confidence should be built and basic safety patterns taught. Theme outlines which teachers can use to help children develop a physical education vocabulary are included and contain information on floor and mat work, the different body parts used, ways to extend the theme, apparatus culmination, and apparatus arrangements. Low-organized and team games

and track and field activities for TMRs which sharpen hand, eye, and foot coordination are described. Game descriptions include information on rules, general aims, basic movements, lesson materials, lesson progression, games application, and game variations. Dance instruction provides improvement in posture, coordination, awareness and control of body movement and opportunities for enjoying and exploring movement to music, listening and responding, and social development. Themes for movement development and exploration, in conjunction with a variety of sounds and at different functional levels, are described. Sample lessons for a creative dance program and for the development of a folk dance are included. (30 refs.) - *J. K. Wyatt.*

CONTENTS: Philosophy of Movement Education; The Development of Movement Ideas; Establishing a Theme; Games and the Trainable Retarded; The Aims of a Dance Program for the Trainable Retarded; Reference Books and Records.

491 BACHMANN, WALTER; & SCHÜTT, MARIA. Taenzerische Erziehung als Prinzip und Fach an einer Sonderschule fuer Lernbehinderte (Dance training as principle and subject in a special school for the mentally retarded). *Zeitschrift fuer Heilpaedagogik*, 18(5): 274-283, 1967.

A program of dance instruction was beneficial to 2 groups of MR girls in grades 5 through 9. Dance instruction, as a subject, is an integral part of total education and can be conveniently divided into basic exercises, improvisation, dance mastery, recital, and pantomime. Dance training is a sound pedagogic principle and results in free expression of the personality and emotions (particularly joy) and development of music sensitivity, appreciation, and response. Dance is an outlet for the MR's need of movement, makes use of the therapeutic values of body, breath, and speech rhythms, leads to improvement in physical movement, gives free rein to the imagination, and instills self-confidence. (17 refs.) - *S. P. Glinsky, Jr.*

Ernst-Neeb-Strasse 12,
65 Mainz, West Germany

492 REILAND, ROBERT F. Dance workshops explore body awareness. *ICRH (Information Center, Recreation for the Handicapped) Newsletter*, 3(21):4, 1969.

Dancing is an activity in which each child can achieve success, demonstrate self-expression, learn social awareness, and experience the feeling of being part of the group. With some direction and demonstration by the teacher, the child can be encouraged on his own to create movements, express feelings, and enjoy success. Activities should alternately emphasize group and individual participation, and the teacher should introduce a wide variety of movements involving all muscles. The length of dance sessions should be flexible and depend upon the children's interest and fatigue level. (No refs.) *E. F. MacGregor.*

No address

493 VENGRZHINOVSKII, V. V. O provedenii igr na urokakh fizkul'tury vo vspomogatel'noi shkole (Playing games during physical education classes in remedial schools). *Spetsial'naya Shkola*, 3(129):69-72, 1968.

Playing games helps to develop the coordination of MR children. The role of games and their control by the teacher in order to improve the physical development of MR children is presented. Several games used in schools in the USSR to carry out this goal are described. (No refs.) - *R. K. Butler.*

Remedial School Number 3
Tashkent, Union of Soviet Socialist Republics

494 TSIKOTO, G. V. Rol' igry v razvitii naglyadno-obraznogo myshleniya umstvenno otstalykh doshkol'nikov (Role of games in developing visually formed thoughts in preschool aged MR children). *Spetsial'naya Shkola*, 3(129):60-64, 1968.

For preschool MR children, directing and correcting games which have an educational element facilitate the development of the thought process. The study attempted to clarify whether preschool-aged MR children are able to use images of known objects, explain their uses, create an elementary game situation, express it in words, and carry it out. Thirty Ss (10 each of normal 3- to 4-year olds, MR 3- to 4-year olds, and MR 7- to 8-year olds) were placed in a room with some toys. After their reactions and whether they knew the names of the toys were noted, the examiner related a story to the Ss involving 3 toys in a car; one toy falls out, another stops the car and gets out to help, and the children then tell which toy remains in the car. The normal Ss and the 7- to 8-year-old MRs had little or no trouble answering the

question correctly. Only after repeated telling and questioning could 5 of the 3- to 4-year-old MRs answer the question. With repetition and guidance, the younger MRs were able to carry out the actions in the story to a satisfactory extent, which points out the value of directed educational games for the development of MRs. (No refs.)
R. K. Butler.

Special Kindergarten
Moscow, Union of Soviet Socialist Republics

495 STAFFORD, CHARLOTTE. Making music with tonettes. *Pointer*, 13(2):29-31, 1968.

Using a music book that only uses 6 notes of the scale, a teacher of the deaf taught her students to play simple melodies with tonettes. Because the children were deaf, self-control and breath control were most important. Instructions on the chalk board, hand clapping, and transparencies were the main sources of instruction. (No refs.)
V. G. Votano.

Melridge School
Plainsville, Ohio

496 CIMOLINI, M. J. Music for the trainable. *Pointer*, 13(2):61-63, 1968.

Music in all its forms teaches TMR children activities which include creating a pleasant atmosphere, providing security, developing auditory perception, following directions, stimulating imagination, and developing vocabulary. Music can develop a feeling of rapport during the first few days of school, and it provides a means by which all of the children can participate in some way while enjoying the experience. By listening and doing activities such as clapping or swaying to the sounds, children develop a sense of rhythm and coordination which can be transferred to other body movements. Body and voice control develops through musical games and singing which also help to increase the child's vocabulary. Concentration can be improved when the child plays an instrument and must play his part at a given time. Also music and instruments, when used to tell stories, stimulate the student's imagination. Finally, singing and playing instruments offer an opportunity through which TMRs can work out their frustrations and give vent to excess energy. (No refs.) - *V. G. Votano.*

Oakridge School
Vancouver, British Columbia, Canada

497 YOUNG, BILOINE W. Head Start and other pre-school enrichment programs. In: Roucek, Joseph S., ed. *The Slow Learner*. New York, New York, Philosophical Library, 1969, p. 263-280.

The high level of interest in preschool intervention programs is due to the realization that the number of children and young people whose ability to learn is severely retarded is rapidly increasing and the effects of deprivation influence a child's ability to learn during the earliest years of life. Since its original crash program in 1965, the Head Start program has attempted to break the cycle of poverty before it becomes rooted in a child's life. This program is specifically designed for children who are already behind the average middle-class child because of poverty, discrimination, poor health, or deprived environments. Psychologists, sociologists, and educators emphasize the crucial effects of early experience on the development of intelligence. The language retardation of the culturally deprived is a specific learning handicap which retards school progress. Special programs are required to provide the kinds of learning needed to overcome language deficits. Some Head Start programs have resulted in gains of 5 to 10 IQ points and 20 to 25 points on school readiness tests. The validity of IQ gains, however, has been questioned, because they have not always persisted. The need for intervention programs is almost universally recognized, but the nature and specific content of these programs is being questioned. Specially-designed, cognitively-oriented programs appear to be more effective in producing intellectual growth than traditional nursery school programs. (33-item bibliog.; 25 refs.)
J. K. Wyatt.

498 BERCHERT, RONALD J. The preschool retardate: Growth and development through arts and crafts. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Mental Health Department, 1969, p. 92-96.

Art experiences can be used to help a child develop self-awareness, formulate new ideas, and express feelings and emotions. The proper use of arts and crafts can enhance perceptual acuity and help the child experience the environment, test reality, develop motor coordination, and establish a healthy relation with his surroundings. Arts and crafts can be used to teach a MR child to follow directions, and they can provide an outlet for aggressive, hostile, and destructive impulses. Teachers of preschool MRs should understand that all children are creative,

and the levels of maturity and methods of learning differ among all children. Teaching should begin by expanding the child's world with large, free motion activities which use large muscle skills. As the child progresses, activities which use small muscle skills and develop coordination and muscle control may be introduced. (No refs.) - *J. K. Wyatt.*

499 Therapeutic art programs around the world: IV. Art and applied art by mentally defective children. *Bulletin of Art Therapy*, 7(1):29-33, 1967.

The art program for MRs enrolled in the Francois-Michelle School is described. The aims of the program are outlined and proper attitudes of the teacher are defined. Also included are suggestions for the room decorations and staff composition. (No refs.) *A. Huffer*

500 COX, ARTELIA MOORE. *Arts and Crafts Are More Fun in Special Education.* Danville, Illinois, Interstate, 1970, 157 p.

A dynamic arts and crafts program for the educationally handicapped child nourishes a feeling of achievement and a sense of personal satisfaction, establishes self-esteem, provides an emotional outlet for frustrations, encourages respect for others while learning to work together, develops new skills and good work habits, invites creativity and experimentation, stimulates community interests, offers constructive recreation, and provides a sound use of leisure time. Arts and crafts can be used effectively to motivate the MR, reinforce significant concepts, and test for reading comprehension. Projects can help the EMR develop prevocational and workshop skills that will foster self-discipline and responsibility. Program activities give MRs a feeling of belonging, assist them in gaining the respect of other children, enable each child to interact more comfortably, help them in establishing healthy sibling interpersonal relations, and aid them in adjusting in the community. Teaching procedures and principles should be purposeful and realistic. (5 refs.) *S. Half.*

CONTENTS: The Workshop; Securing Materials; Displaying Finished Products; Arts and Crafts to Motivate and Reinforce Concepts; Science Projects; Arithmetic Projects; Language Arts Projects; Social Studies Projects; Arts and Crafts in Health Education; Arts and Crafts in Music; Arts and Crafts to Aid Family Living; Arts and Crafts to Foster Group Participation; Personal Ownership; Community Service; Prevocational Training; Using Arts and Crafts as a Means of Integration of Classes; Art for the Holidays; Enhancing Sibling Relationships; Arts and Crafts to Encourage Creativity; Suggested Activities for the "Private Office"; Recipes.

501 GÜGLER, ALOIS. Die religioese Erziehung des Giestesschwachen Kindes (Religious training of the mentally retarded child). *Heilpaedagogische Werkblaetter*, 36(1); 12-17, 1967.

The special psychology of the MR child requires a religious pedagogy which has been specifically developed for him. The MR's development depends upon generally valid internal factors (disposition and the effect of baptismal grace) and external factors (family atmosphere, education, and social environment). Defects of intellect, emotion, and will in the MR render religious instruction more difficult. Religious truths are not grasped conceptually but intuitively. The MR's belief is of a participatory nature; it must be built-up gradually from concrete ideas with a constant emphasis on awakening a feeling for holy things, moral content, and daily religious practice in class and at home. (4 refs.) - *S. P. Glinsky, Jr.*

Catechetical Institute
CH 6000, Lucerne, Switzerland

502 FISCHER, ROSILDA. Methodische Grundsaetze und didaktische Leitlinien im Religionsunterricht bei Geistesschwachen (Methodological principles and didactic guidelines in religious instruction of the mentally retarded). *Heilpaedagogische Werkblaetter*, 36(1):18-27, 1967.

The catechetical instruction of MR children requires special methods. The religious instruction hour should begin with genuine contact, utilize much free conversation and activities, relate religious truths to everyday life, and end with a small prayer celebration consisting of a Bible or liturgical passage and its moral, silent prayer, and a final hymn. General principles of instruction include simplifying religious concepts so they can be understood, appealing to all the

senses, coordinating the truths with other facets of knowledge and man, and varying the method of presentation. (No refs.)
S. P. Glinsky, Jr.

Kantonale Sonderschulen
CH 6276 Hohenrain
Lucerne, Switzerland

503 FISCHER, ROSILDA. Verschiedene Methoden und Hilfsmittel im Religionsunterricht bei Geistesschwachen (Various methods and teaching aids in the religious instruction of the mentally retarded). *Heilpaedagogische Werkblaetter*, 36(1):28-34, 1967.

General criteria regarding the adoption of various methods and teaching aids in the religious instruction of MRs are given. Methodology is determined by the content and goal of the instruction and the special characteristics of the pupil. Methods include the Munich method, kerygmatic or personal involvement catechesis, Bible catechesis, the French method of Bissonier, and the symbolic method which relies on early Christian symbols. Instruction can utilize observations from nature, draw parallels from everyday life with biblical figures and events, and explain religious objects in the church and religious ceremonies. Finally, religious instruction should rely constantly upon student drawings, paintings, wall pictures, and Bible maps. (6 refs.) - *S. P. Glinsky, Jr.*

CH 6276 Hohenrain, Lucerne,
Switzerland

504 CORCORAN, DANIEL. Sequential steps in learning to tell time. *Pointer*, 13(2): 10-12, 1968.

An effective system which requires no special equipment has been devised to teach MR children how to tell time. First, introduce blank clock faces so the children can practice putting in the correct numbers. Second, have them place the numbers 5 through 30 next to the hours starting with 1 through 6; reverse this process for hours 7 through 12. Next, introduce the clock hands giving the purpose of the long and short hand. Minutes before the hour are always written in front of the hour, but minutes after the hour are written behind the hour with the time-telling vocabulary remaining unaltered. (No refs.)
V. G. Votano.

Beaver Brook School
Danbury, Connecticut 06810

505 DOLLAR, MARY. Breaking the silence barrier. *Pointer*, 13(2):60, 1968.

Verbal responses from inarticulate or shy children can be stimulated by having the students help the teacher give details of a class happening or help find an object which has been mislaid. Addressing children affectionately, greeting them with a treat, or showing them something attractive help set the mood for a pleasant day. (No refs.)
V. G. Votano.

Sunset School
West Covina, California 91790

506 MAKIN, DOROTHY. Perception exercises for trainables. *Pointer*, 13(2):64-65, 1968.

A set of exercises consisting of lines, shapes, and designs can be used to teach perception to TMRs. First, the children trace the design with their fingers; later, the design is copied on the other half of the design paper. As the children improve, the designs should become increasingly complex. (No refs.) - *V. G. Votano.*

Woodvale Center for Exceptional Children
Johnstown, Pennsylvania 15901

507 SACKS, MARIAN. Trainable boys learn to be "men". *Pointer*, 13(2):67-68, 1968.

TMR boys decided to adopt some adult habits after selecting several staff members and observing and discussing their attributes. Several class members resolved to stop some of their childish mannerisms. (No refs.)
L. Kyle.

Rosewood State Hospital
Owings Mills, Maryland 21117

508 MONAGHAN, ANNA E. Junior high achievements. *Pointer*, 13(2):41-42, 1968.

Junior-high, special-class students achieved success in a program that emphasized vocational as well as academic training. The class participates in field trips and presents plays besides concentrating on all their studies. Over the past 5 years, 15 graduates have government jobs, one works in a

service station, 6 have licenses to operate business machines, and one has a diploma from a business school. (No refs.) - *V. G. Votano.*

Junior High School
Greenbelt, Maryland 20770

509 JACOBSON, ILSE L. A unit on milk foods. *Pointer*, 13(2):6-8, 1968.

A unit of study on milk foods for pupils (MA 3-5) was enhanced by the preparation and eating of different foods, such as chocolate milk, butter, whipped cream, and pudding. Other activities utilized included making posters and pictures, reading stories, drawing, and constructing a scrapbook about milk foods. (No refs.) - *V. G. Votano.*

Goodman Avenue School
La Grange, Illinois 60525

510 TOUSANT, ALDONIA B. Valentine activities for the trainable. *Pointer*, 13(2): 59, 1968.

TMRs made a valentine zoo and animal farm from construction paper and chalk. Animals assembled from heart-shaped pieces were pasted on background paper to resemble an animal farm yard; the remaining paper animals were placed in a grassfilled box. (No refs.) *V. G. Votano.*

McDonogh Number 24 Elementary School
New Orleans, Louisiana

511 HORVATH, JOANNE M. What is love? "Love in"--Classroom style. *Pointer*, 13(2): 13-15, 1968.

The importance of love was stressed by having the children: find examples and pictures of love at home and at school; make a collage, posters, and streamers; and plan a special celebration on St. Valentine's Day. The celebration spread throughout the school with other teachers, principals, and workers contributing. (No refs.) - *V. G. Votano.*

Butler County Public Schools
Butler, Pennsylvania 16001

512 ANGELE, MARIE. Innovate to motivate. *Pointer*, 13(2):58, 1968.

A snowman can be built in the classroom by constructing a chicken wire frame, and then having the children place tissues in the holes. By allowing a child to stand inside the frame, the snowman can come to life. (No refs.) - *V. G. Votano.*

Westwood School
Batesville, Indiana 47006

513 BUCKRIDGE, R. Lessons from menus. *Pointer*, 13(2):40, 1968.

A lesson plan utilizing a mock restaurant situation helped the children learn: table manners; the making of change; and the importance of legible writing, communication, and spelling. The unit was later expanded to include balanced diets, hygiene, and an awareness of social standards. (No refs.) *V. G. Votano.*

College Park School
San Mateo, California

514 MAHIN, DOROTHY. Field trips for home visiting. *Pointer*, 13(2):12, 1968.

Field trips by the entire class for the purpose of visiting their classmates' homes have helped children learn proper greeting procedures, addresses, introductions, and table manners. After several weeks of visiting homes, the children reciprocated and invited the mothers to be guests at the school. (No refs.) - *V. G. Votano.*

San Joaquin County Schools
Stockton, California

515 ROOT, CORINNE. My hands are important. *Pointer*, 13(2):15, 1968.

The importance of hands was emphasized by developing a series of lessons which included the use, care, and protection of the hand. (No refs.) - *V. G. Votano.*

School Number 89
Indianapolis, Indiana

516 STAFFORD, CHARLOTTE. Knitting soothes the restless child. *Pointer*, 13(2):31-33, 1968.

Restless children often enjoy knitting because of the attractive objects (such as scarves, slippers, and pillows) which they

can produce. Each student should be instructed individually, and casting on should be delayed until the student can knit competently. The learning of color differences and counting is aided by this project. (No refs.) - *V. G. Votano.*

No address

517 MUEHLBERGER, CARL E. Achievement testing. *Pointer*, 13(2):22-23, 1968.

When administering achievement tests to MRs, guidelines to follow include: develop proper motivation, administer the test during the middle of the week, emphasize that no pupil fails, review carefully the direction, provide oral instruction when necessary, establish no time limits, and avoid the use of test results as a basis for parent conferences. (No refs.) - *V. G. Votano.*

Syracuse University
Syracuse, New York 13210

518 MUEHLBERGER, CARL E. Evaluative techniques. *Pointer*, 20-22, 1968.

Evaluation of academic and personal-social skills of EMRs can be accomplished with the use of anecdotal records, tape recorders, oral and written methods, and periodical progress reporting by the teacher. The teacher's anecdotal records should include significant attitude changes toward learning, school, self, and teacher and variations in communicative skills. The tape recorder can be used during group sessions, and occupational interests, hobbies, experiences, and school activities can be recorded during individual sessions. Simplified written methods of evaluation are helpful for recording arithmetic, writing, spelling, and reading skills. Oral means are most successful in areas such as occupational education, social living, health, and safety. Progress reporting to the parents should occur at 10-week intervals, and individual conferences with the child are most helpful at this time. The coding system for the report card must be easily understood and the terminology simple and concrete. (No refs.) - *V. G. Votano.*

Syracuse University
Syracuse, New York 13210

519 LANZEN, HEINRICH. Unterrichtshilfen fuer Lernbehinderte (Instructional aids for mentally retarded students). *Zeitschrift fuer Heilpaedagogik*, 18(7):378-388, 1967.

Three examples of classroom instructional aids illustrate the effectiveness of work and group instruction. Instructional aids must be attractive, call for a definite task to be completed, have self-controls, encourage repetition and reproduction, strengthen habits of work, and aid in increasing knowledge. Materials taken from everyday life often provide the greatest possibilities for use and application. For example, old telephones can be used to improve speech, provide a more realistic situation for utilizing the alphabet when consulting a telephone book, and develop a general awareness of the outside world. Other examples are the preparation of text below pictures by copying over preperforated letters and words and the pairing of students to work with a dictaphone, slide projector, or other aids calling for reproduction in words of the other student's dictation or description. Through such partnership work in conjunction with apparatuses, instruction becomes more attractive, interesting, practical, and effective for the MR students. (22 refs.) - *S. P. Glinsky, Jr.*

Frangenheimstrasse 4
5 Cologne-Lindenthal
West Germany

520 GEHRECKE, SIEGFRIED. Auslese aus dem aktuellen internationalen heilpaedagogischen Schrifttum (Selections from current international remedial pedagogy literature). *Zeitschrift fuer Heilpaedagogik*, 18(9):509-514, 1967.

Specific problems, developments and ideas in current MR pedagogy literature are indicated. Topics selected include: the lengthening of school for MRs; the tyranny of intelligence training in school as opposed to other educational criteria; the psychological and psychoanalytic treatment of MRs; the relation of the MR to the family, especially where father or mother are absent; relationship between degree of retardation and size, weight, and head circumference; the hereditary aspects of

handicaps and Down's syndrome, as related to father, mother, and their chromosomal profiles and age; the analysis of an MR's diary; the results of medical treatment to further neuro-physiological growth; the dependence of size and growth upon environment; results of therapeutic care in an institute emphasizing a home atmosphere; and the necessity of various tests in determining maturity and formulating school programs. (23 refs.)
S. P. Glinsky, Jr.

Hasenheide 90
1 Berlin 61, West Germany

TREATMENT AND TRAINING--PSYCHO-SOCIAL

521 KLABER, M. MICHAEL; BUTTERFIELD, EARL C.; & GOULD, LAURENCE J. Responsiveness to social reinforcement among institutionalized retarded children. *American Journal of Mental Deficiency*, 73(6):890-895, 1969.

The meaning of social reinforcement to MR children from 2 institutions, which differ in their emphasis upon social relations of attendants with patients, was compared in 21 SMRs who were transferred from Institution A to Institution B with 19 Ss remaining in Institution A and matched on sex, race, MA, IQ, age at admission, and other variables. Institution A was a medium-sized facility which provided custodial care while Institution B was a small demonstration unit where habilitation was emphasized. Access to toys and interpersonal contacts was greater in Institution B than in Institution A; also children in Institution A had significantly fewer visits by parents. The experimental task required the Ss to place objects on a panel. Following 13 trials in which the S was instructed to place the objects anywhere on the panel, the S was allowed to continue playing as long as he desired. Socially deprived Ss (those from Institution A) placed their figures significantly closer to the experimenter (41 inches as compared to 52 inches) and remained playing a significantly longer period of time (28 min as compared to 16 min; $t=2.34$, $p<.025$). There was no relation between the 2 dependent measures and the frequency of parent visits; thus, the results were ascribed to the different institutional conditions. (12 refs.) - *J. M. Gardner.*

University of Hartford
West Hartford, Connecticut 06117

522 SHERON, ARVILLA A. Social exchange and operant conditioning with applications to the mentally retarded. *Education and Training of the Mentally Retarded*, 4(2):65-70, 1969.

Operant conditioning has been effective in changing behavior; however, it is important to remember that each MR is different, sensitive to failure, and deserves respect as a human. Studies which applied operant conditioning methods have shown that behaviors can be changed by giving praise and/or food or entertainment tokens. One study successfully used 3 classroom centers (mastery achievement, exploratory social, attention-response-order) and behavior modification principles to teach educationally handicapped Ss to pay attention, follow directions, and explore. Other studies have taught 2-year olds to read at a 5-year-old level, shy children to talk, and autistic children to speak. When one uses this behavior modification model with the MR, one should structure the tasks for achievement. The usual rewards of stars or grades should initially be substituted by food; later, the pleasure of achievement might be the only reward needed. (12 refs.) - *M. Plessinger.*

No address

523 COON-TETERS, FLORIA. Human considerations in the education of educationally handicapped adolescents. *Academic Therapy*, 4(3):165-169, 1969.

Meaningful communication between parents of educationally handicapped adolescents and educational and therapeutic agencies can help

foster adaptive behavior. Adolescence is a difficult period for normal children and is increasingly difficult for the educationally handicapped, who may have problems in the area of body-image, sexual identity, and social interaction. It is necessary to have greater compassion and more sensitivity when working with these children. (No refs.)
J. M. Gardner.

Richmond School District
Richmond, California

524 McREYNOLDS, LEIJA V. Application of timeout from positive reinforcement for increasing the efficiency of speech training. *Journal of Applied Behavior Analysis*, 2(3): 199-205, 1969.

Language training procedures, which involved positive reinforcement for verbal imitation, were applied to increase the appropriate verbal behavior of an almost non-verbal, brain-damaged, 5-year-old boy. Two experiments assessed the effectiveness of timeout from positive reinforcement as a training procedure viewed as having potential punishing and negatively reinforcing functions. In both experiments, timein (termination of timeout and resumption of training) was arranged to have reinforcing properties in that it presented an opportunity to receive positive reinforcers. In Experiment I, the procedure consisted of temporarily halting language training (timeout) following verbal jargon and resuming it (timein) contingent upon the boy sitting quietly in his chair for approximately 30 seconds. The jargon declined to almost zero for an extended period each time the procedure was employed. In Experiment II, the procedure consisted of halting language training (timeout) after emission of undesired verbal responses which previously had been reinforced as the desired approximation to the target verbal behavior. Resumption of training (timein) was made contingent upon the emission of the then-desired approximation of the target verbal behavior. In each experiment, the contingent timeout and timein of the language training that involved positive reinforcement effectively reduced the undesired and increased the desired responses. (5 refs.) - *Journal abstract.*

University of Kansas
Lawrence, Kansas 66044

525 LOVAAS, O. IVAR; & SIMMONS, JAMES Q. Manipulation of self-destruction in three retarded children. *Journal of Applied Behavior Analysis*, 2 (3):143-157, 1969.

The study attempted to isolate some of the environmental conditions that controlled the self-destructive behavior of 3 severely retarded and psychotic children. In the extinction study Ss were placed in a room where they were allowed to hurt themselves, isolated from interpersonal contact. They eventually ceased to hurt themselves in that situation, the rate of self-destruction falling gradually over successive days. In the punishment study, Ss were administered painful electric shock contingent on the self-destructive behavior. The self-destructive behavior was immediately suppressed. The behavior recurred when shock was removed. The suppression was selective, both across physical locales and interpersonal situations, as a function of the presence of shock. Generalized effects on other, non-shock behaviors, appeared in a clinically desirable direction. Finally, a study was reported where self-destructive behavior increased when certain social attentions were given contingent upon that behavior. (12 refs.)
Journal abstract.

University of California, Los Angeles
Los Angeles, California 90024

526 WATSON, LUKE S.; GARDNER, JAMES M.; & SANDERS, CHRISTOPHER. Columbus State Institute behavior modification program. Paper presented at the 93rd annual meeting of the American Association on Mental Deficiency, San Francisco, California, May 1969, 10 p. Mimeographed.

Behavior modification principles and techniques are applied to both patients and staff at Columbus State Institute. The core of the program revolves around an itinerant training team composed of attendant-level, behavior-modification technicians. The training team moves from ward to ward in the institution training patients and staff. Contingent reinforcement is applied to the staff in classroom training and on the ward. Data collection is reinforced through contingent time-off. Training with severely and profoundly MRs centers around self-help and social skills. Extensive use is made of auxiliary personnel, such as university students, Neighborhood Youth Corps workers, and Foster Grandparents volunteers. (No refs.)
J. M. Gardner.

1601 West Broad Street
Columbus, Ohio 43223

527 VAN WAGENEN, R. KEITH; MEYERSON, LEE; KERR, NANCY J.; & MAHONEY, KURT. Rapid toilet training: Learning principles and prosthesis. *Proceedings of the 77th Annual Convention of the American Psychological Association*, Volume 4, Part 2, 1969, p. 781-782.

Auditory signal generators which provided a signal coterminous with the flow of urine were used in a rapid toilet training program for 9 incontinent PMR children (5 males, 4 females; CA 4 to 9 yrs). The training program was based on a sequence of forward-moving events including repeated exposure to the discriminative auditory stimuli in the presence of body sensations associated with voiding, the elicitation of an alerting response aimed at restraining the impulse to void, the elicitation of a running response to bladder sensations, the elicitation of clothing removal, and training the S to take a sex-appropriate position for voiding. Ss took from 5 to 24 days to acquire the criteria for toileting behavior which was maintained for a period of several months. The life circumstances of 4 Ss resulted in regression in toileting behavior; however, toileting behavior became autonomous again when the environment was altered and brief retraining instituted. (1 ref) - *J. K. Wyatt.*

Arizona State University
Tempe, Arizona 85281

528 SPARKS, HOWARD L.; & YOUNIE, WILLIAM J. Adult adjustment of the mentally retarded: Implications for teacher education. *Exceptional Children*, 36(1):13-18, 1969.

The EMRs have more difficulty with adult adjustment than other groups, as shown by studies which indicate that they: have less vocational success; need more training in personal independence, coordination, and social acceptability; and are more likely to violate laws. Specific adjustment problems of EMR adults arise from a potpourri of programing, over-reliance on mental functioning, and lack of extended programing. Efficient education programs should include a logical sequence in curricular content, actual work experience, early rehabilitation intervention through cooperative programing, community involvement, and regularly scheduled evaluation of students and staff. To improve teacher education for the EMR, it is necessary to combine knowledge of the MRs' special problems with a strong background of subject matter instead of using elementary teachers with generalized backgrounds. (19 refs.) *V. G. Votano.*

Virginia Commonwealth University
Richmond, Virginia 23200

529 CARTER, LAMORE J. Coping with troubled behavior. *Pointer*, 13(2):18-20, 1968.

Aggression, withdrawal, and other frustrated behavior of primary age pupils can be alleviated by corrective techniques which utilize the administration of direction and reward. An aggressive child can be helped by not rewarding this behavior, providing opportunities to learn new responses, and finding the source of frustration. Remedial action for withdrawn children includes understanding that this behavior is similar to running away from problems and then proceeding to create a relationship with the child which encourages communication. Hyperactive children should be kept busy and working in an active group. A slow learner needs to be allowed to make errors without recrimination from the teacher. In order for the teacher to work effectively with children, he must use some of their language, participate in their cultural activity, and alleviate their fears. (No refs.) *V. G. Votano.*

Grambling College
Grambling, Louisiana 71245

530 MATHENY, ADAM P., JR. Pathological echoic responses in a child: Effect of environmental mand and tact control. *Journal of Experimental Child Psychology*, 6(4):624-631, 1968.

Pathological echoic responses are subject to environmental control through functional relations between a child's verbal repertoire and the verbal behavior in the environment. Throughout 15, 1-hour sessions with a teacher in a preschool nursery playroom, echoic and nonechoic responses of a 5-year-old boy with pathological echolalia were recorded with respect to the teachers mand (command) or tact (contacting) responses. The S's nonverbal abilities were in the average IQ range; verbal abilities were in the 60-70 IQ range. One observer, stationed in an unused area of the playroom, recorded the frequency of each type of verbal response. During 3 sequential blocks (5 sessions each) the teacher was asked to maintain, decrease, and increase the proportion of her mand responses. A significant correlational relation between the categories of the teacher's verbal behavior and the categories of the child's verbal behavior was obtained. When the teacher's tact responses

were more frequent than mand responses, the boy's echoic responses were more frequent than his nonechoic responses; when the teacher's mand responses were more frequent than tact responses, the boy's nonechoic responses were more frequent than his echoic responses. The application of operant conditioning procedures to elicit normal verbal behavior must take into account functional relations like these. (6 refs.) - *D. F. McGrevy.*

University of Louisville
Louisville, Kentucky 40202

531 STOLZ, STEPHANIE B.; & WOLF, MONTROSE M. Visually discriminated behavior in a "blind" adolescent retardate. *Journal of Applied Behavior Analysis*, 2(1):65-77, 1969.

Various self-help skills dependent upon visual perception were instituted in a 16-year-old moderately retarded male diagnosed as organically blind. Training consisted of social and edible reinforcement for correct responses to 2-choice visual discrimination tasks. The size of the stimuli was gradually reduced until success was achieved when discriminating between 2 letters of standard type (18 pt Futura Medium). Eye contact following instructions ("Look at me") was systematically reinforced with the requirement of a 2-second latency and a 3-second duration of looking. This was later transferred to eye-contact behavior when emitting sentences. A probe revealed the importance of the reinforcement conditions. Following this, proper mealtime behavior, eating neatly, and obtaining food in a cafeteria line were instituted. In the absence of the reinforcement contingencies, obtaining-food behavior remained at a high frequency level while the other behaviors returned to baseline frequencies. (17 refs.) - *J. M. Gardner.*

Jewish Foundation for Retarded Children
Washington, D. C. 20011

532 STADELI, H. Ein Beitrag zur Problematik der Beziehungsschwiergkeiten von Muettern zu ihren autistischen Kindern (The problems of contact between mothers and their autistic children). *Acta Paedopsychiatrica*, 35 (4-8):227-241, 1968.

Mothers of autistic children generally exhibit either cool and distant or overprotective reactions toward their unresponsive children, but it is possible to overcome this through a therapy program which is either separate or at the place where the child is being treated. The success of treatment in mother and child depends on the age of the child when first committed for therapy. Often mothers do not become aware of the child's autism until another healthy child is born; this may make the case hopeless. However, it is possible, through therapy, for the mother to learn to give a more positive and loving response to her child. (17 refs.) - *S. L. Hamersley.*

Beobachtungs- und Therapiestation "Sonnenhof"
Ganterschwil, Switzerland CH-9608

533 DAGONI-WEINBERG, ELISE. From total isolation to social communication: Treatment of a case of early infantile autism. *Acta Paedopsychiatrica*, 36(5):153-165, 1969.

The author describes a case of early infantile autism; a little girl aged 3 1/2 years who after treatment of nearly 4 years could be seen as able to communicate effectively and socially with the environment. The language development progressed from total mutism, to a personal "jargon", to echolalias, alternating with broken language in an open attempt to speak. Finally, well-constructed language appeared, and "you" was replaced by "I" showing the gradual growth the child has been able to fulfill. The formerly rejecting family was persuaded to change their negative attitude and return her to their home. School attendance became possible, and the attachment to friends was noticed. Treatment was child-centered, followed by home-mother-centered and family-centered. (7 refs.) *Journal summary.*

Shd. Hanassi 58
Haifa, Israel

534 CANCEL, C. A. A successful therapeutic 'home program' in an autistic child. In: *Concilium Paedopsychiatricum: Proceedings of the Third European Congress on Pedopsychiatry*, held Wiesbaden, Germany, May 4-9, 1967. Basel, Switzerland, Karger AG, 1968, p. 255-259.

A detailed explanation is given of a 3-year-old child, thought to be autistic, who showed marked improvement by means of a structured therapeutic home program. This successful program was effective due to a key person in the family constellation who provided the child with love, attention, understanding, and affection. Play activities, adequate care, and supervised teaching were implemented. In a 2-year period of time, the child responded with behavior similar to that of a normal child. (No refs.) - *S. Half.*

535 FLOOD, NANCY C.; & GROSS, DOUGLAS M. Shaping complex behavior in an autistic child. *Proceedings of the 77th Annual Convention of the American Psychological Association*, Volume 4, Part 2, 1969, p. 811-812.

A program of sequential steps and behavior modification techniques was used to shape the object counting behavior of an autistic boy (CA 7 yrs). The steps included verbal recognition of number symbols, counting pegs, naming the number of pegs present after counting, naming the number of objects other than pegs, and counting a subset of objects from a larger set. Training sessions were held 1 hour/day, 5 days/week for an 8-month period. A recording of children's songs and paper stars were used as reinforcers, and a discrete trials procedure was used. The index of performance was the percentage of correct uncued responses/session. The components of each new step were kept as similar as possible to those of the preceding steps. (1 ref.) - *J. K. Wyatt.*

University of Minnesota
Minneapolis, Minnesota 55455

536 KYSAR, JOHN E. The two camps in child psychiatry: A report from a psychiatrist-father of an autistic and retarded child. *American Journal of Psychiatry*, 125 (1):141-147, 1968.

The psychiatrist-father of an MR-autistic boy felt caught between 2 psychiatric philosophies: one that autism was psychogenic in origin and that organic findings were irrelevant, the other that autistic withdrawal was a consequence of organic retardation. The conflict was manifest in treatment approaches with the psychogenic philosophy calling for intensive therapy, residential placement, and parental analysis and the organicity philosophy calling for support and understanding. An approach which disregards organicity plays upon parental guilt and raises false hopes of successful treatment. A realistic appraisal of neurological deficits provides the optimal milieu in which parents and schools can support the child. (8 refs.) *E. L. Rowan.*

University of Illinois
Urbana, Illinois 61801

TREATMENT AND TRAINING ASPECTS--OCCUPATIONAL

537 HALL, T.; JERROLD, M. A.; FOX, R.; & WRIGHT, H. J. Preparation of immature and educationally subnormal school leavers for a life in industry. *Lancet*, 1(7599):830-832, 1969.

Most physically handicapped, EMR, or maladjusted young persons can be found jobs in industry without serious difficulty, but there remain a number for whom the transition from school to industry is especially difficult. An industrial training unit attached to a secondary school in Portsmouth was set up at the end of 1966 to cope with these cases. So far, all those who have started or completed a period of training in this unit have come direct from the school, but in the future it should be possible to take in referrals from other sources. The conditions of work and the sort of work undertaken are made as realistic as possible, the main emphasis being on light engineering. The pupils learn to be familiar with machinery and with industrial procedures, and the standard of work leaving the unit is as high as that expected by the firm which provided it. Seventeen young people have completed a training period, and 14 of these are still in the original industrial placement. There has been only one accident in the unit, and no accident to a former trainee has been reported. The unit is supervised by a teacher/manager experienced in industrial techniques and in the teaching of EMR children. (21 refs.) - *Journal summary.*

Medical Department
County Hall
London, S.E. 1, England

538 CHIN, PHILIP C. The habilitation of the educable mentally retarded through high school work-study programs. In: Love, Harold D., ed. *Teaching the Educable Mentally Retarded*. Berkeley, California, McCutchan, 1968, Chapter 8, p. 291-312.

Training stations within a school should be used to provide MRs in prevocational programs (CA 13 to 16 yrs) with their first work experiences and to evaluate their abilities and identify deficiencies. At the age of 16 years, EMRs should be ready for vocational level classes and should participate in a work-study program. Problems in the development of a work-study program include parent apathy and student expectancy of failure. On-the-job training experiences for EMRs are probably the most valuable and crucial aspect of their education. As many different placements as possible should be available in unskilled and semiskilled tasks and in sheltered workshops and competitive work situations. The work-study coordinator can locate training facilities by systematically canvassing likely businesses, enlisting the help of well-known and well-respected individuals in the community, and by involving local service organizations. When a student is placed in a training facility, the work-study coordinator is responsible for checking with the training supervisor to identify any student difficulties, for counseling with the student to help him work out his problems, and for providing varied experiences for the student. The classroom section of the work-study program should include instruction in home management, finance management, leisure time use, tool uses, social skills, personal hygiene and grooming, and driver education. EMRs should be integrated into regular classes where appropriate, and high school graduation should occur after successful completion of 3 years in the vocational program. (7-item bibliog.) *J. K. Wyatt.*

539 MATCH, ELMER. Extending vocational rehabilitation. *Pointer*, 13(2):52-53, 1968.

Public programs of vocational rehabilitation reach only a small percentage of those MRs who are eligible, and those jobs which are available tend to be low-status positions, entry-level service positions, or sheltered workship positions. As more and more secondary level schools have expanded their work-study programs, certain facts have been accepted: work is central in people's lives, each handicapped S may have potentials which have not been fully recognized, handicapped persons must be able to meet production standards, each successful MR employee makes the task of those MRs following him easier, and each agency active in vocational rehabilitation of MRs must understand the role of special education and vocational rehabilitation. Teachers in work-study programs have determined that a major deterrent to vocational success of MR students is their low social level. Some way needs to be found to incorporate "social conditioning" skills into elementary and secondary special education. Other problems include insufficient time schedules, wide variations in class IQ levels, student lack of motivation, community acceptance, employer acceptance, and a need for more counseling and guidance services for the EMR than for their college-bound peers. (No refs.) - *V. G. Votano.*

University of Pittsburgh
Pittsburgh, Pennsylvania 15213

540 RUDDELL, LESTER D. Developing maximum vocational potential. *Pointer*, 13(2): 48-49, 1968.

The Napa (California) school system is supplementing special education classroom curriculum with a work-experience program that begins in the ninth grade where the vocational potential of each student is evaluated. In the tenth grade, students develop confidence and skill by doing vocational tasks in the classroom. During the eleventh grade, they continue job-related training and are also placed on a job within the school for a few hours/day. Finally, in the twelfth grade, students gain work experience in the community with additional training supplied by regular technical schools. (No refs.) *V. G. Votano.*

Senior High School
Napa, California 94558

541 MILLER, MAX. Junior high occupational education program. *Pointer*, 13(2):43-44, 1968.

The objective of an occupational education program in Clark County Public Schools (Ohio) for slow learners (IQ 50-75, CA 16-19) is the development of habits and attitudes which are necessary to hold a job. During a job training period, students work in the school in areas such as maintenance, food service, office, and domestic services. Job placements in the community are made jointly by counselor, teacher, and employer. Employers are encouraged to discuss any problems with the

school, and the suggestions made are used to further adjustment of the student. (No refs.) *V. G. Votano.*

Olive Branch Junior High School
New Carlisle, Ohio 45344

542 ARKANSAS. REHABILITATION SERVICE. Final Report of a Research and Demonstration Project: "Rehabilitation Research"- October 1, 1962 - September 30, 1967. Final Report of Project RD-962. Little Rock, Arkansas, 1968, 32 p. Mimeographed.

The rehabilitation research section of the Arkansas Rehabilitation Service (ARS) was established in 1962 to define major research areas and problems, recruit and evaluate research personnel, find institutions for carrying out research projects, and serve as a liaison between research projects and the institutions and agencies involved in them and between the research program and the field staff of the ARS. During its first 5 years, the major work of the research section was related to securing and conducting special projects which were approved and funded by the U. S. Department of Health, Education, and Welfare. The research section was involved in preparing applications, collecting data, and/or preparing progress and final reports for 14 Federal research projects and 10 intra-agency studies. In addition, agency personnel participated in 9 activities which involved ARS personnel and personnel from other agencies. These projects and activities resulted in the addition of new programs and pointed to needed changes. Among the new services specifically available to MRs as a result of the work of the rehabilitation research section are 6 sheltered workshops and a specialized rehabilitation unit in a hospital for MR adults. (No refs.)
J. K. Wyatt.

543 WILMINGTON PUBLIC SCHOOLS. Follow-up Study of Occupational Education Work-Study Program Leavers. Reiter, R. A. Wilmington, Delaware, Public Schools, 1967, 10 p. Mimeographed.

To determine the success of the Wilmington secondary occupational educational work-study program, 129 EMRs who had been enrolled in the program were contacted by personal interview, telephone, or mail. Of the 129, 90 were males, 39 were females, and IQs ranged from 47 to 93. CAs ranged from 16 to 26 years with average time in the program of 4.2 semesters. Data from the interviews revealed that 54% of the jobs held by program leavers were service occupations and that 50% or better of the pupils received pay above the minimum wage, were promoted, and/or were employed full time. Very few of the 129 voted, 2% received welfare payments, 10 were in the armed forces, and 124 were taxpayers. The majority of those interviewed expressed a desire for additional reading and arithmetic skills. (No refs.) - *C. L. Pranitch.*

544 GETELES, FRANCES; BIERMAN, ARTHUR; GAZA, CAESAR; KELLY, ELIZABETH; & RUSALEM, HERBERT. *A Cooperative Vocational Pattern for In-School Mentally Retarded Youth: Project Number RD-1189.* Orange, New Jersey, Occupational Center of Essex County, 1967, 92 p. (Price unknown)

Three hundred problem male students (150 experimental and 150 controls; IQs 43-83; CA 14-18 yrs; Negro majority) participated in a work-study program sponsored by a community sheltered workshop, a state rehabilitation agency, and a school system. Many of the Ss had had legal problems and were from low socioeconomic, multi-problem families. Most behaved in an aggressive or self-defeating manner, and in many cases, the causes of these patterns were felt to be due to socio-cultural or emotional reasons rather than inherent organic limitations. Participants in the experimental program attended school 3 of 5 days and were assigned to a workshop program which included paid-work experience, intensive counseling to parents and students, placement, and field trips. The control group remained in the regular 5-day school program. Results of the one-year program indicated that, although the experimental group did not show any greater improvement on test batteries, this group did have a higher percentage of employment among members, especially those with IQs below 75. More of the experimental group completed the year in school, and fewer were institutionalized or had legal problems. Some showed signs of personal growth during the year. The 2 groups did not differ in job stability or in percentage of students who were later involved in neither work nor school. Project limitations included the nature of the sub-group of retardates and the fact that the work in the workshop was below the capability level of the students. The following recommendations were made: all social agencies working with the retarded should cooperate to revise existing diagnostic practices in order to differentiate between children with emotional and socioeconomic problems and those with inherent organic problems; these new diagnostic procedures must be supplemented by a differentiated curriculum in the schools or

in a vocational planning; and extensive mental health services should be given to all students diagnosed as MR due to emotional and social problems. (No refs.) - *V. G. Votano.*

545 VIGO COUNTY SCHOOL CORPORATION. Demonstration Project Concerning Training and Vocational Placement for Educable Mentally Retarded Pupils. Hamrick, William J. Terre Haute, Indiana, 1967, 48 p. Mimeographed.

The Vigo County (Indiana) School Corporation with community cooperation developed a work-study program to demonstrate the employability of the EMR. A project supervisor coordinated special education programs and vocational rehabilitation with pupil, teacher, parent, and employer. Specific objectives included providing arrangements for job tryouts, on-the-job training, job placement, and supervision as follow-up after placement. Job training stations and student-trainees were selected on the basis of types of available jobs, skills needed, and the students' skills. Job experiences were provided by the employer, and closely related instruction was provided by the school. Specific job training and placement included service station attendant, dishwasher, car cleaner, janitor, gift wrapper, salad girl, stock boy, carpet cleaner, and porter. A follow-up study to determine the success of job placements indicated that the majority of employers were satisfied with their trainees. All students were rated able to perform their jobs. The few failures reported were attributed to lack of interest on the part of the trainee. To help an EMR assume responsibility for himself through job placement, special emphasis must be placed on his interests and the development of his social skills. (11 refs.) *C. L. Pranitch.*

546 WEST VIRGINIA. VOCATIONAL REHABILITATION DIVISION. Coordinated Program of Vocational Rehabilitation and Special Education Services for the Mentally Retarded: Project RD-1640-D. Williams, Cornelius L. Charleston, West Virginia, 77 p. Mimeographed.

The West Virginia State Division of Vocational Rehabilitation, the Special Education Division, and the Cabell County School Board organized a cooperative 3-year demonstration project to prepare EMRs for community and vocational adjustment. The project provided 87 secondary level EMRs from the Fairfield School with a comprehensive coordinated program of special education and vocational training. The school was responsible for curriculum planning, academic instruction, social skills, work concepts, and adaptive vocational training in regular school classes (manual arts, horticulture, homemaking, kitchen work.) The Division of Vocational Rehabilitation provided such operational aspects as work training, counseling, job tryouts, placement, and supervision. Hospitals, service stations, cafeterias, upholstery shops, and private families were utilized as centers for 22 training areas in clerical, industrial, service, handtool, and messenger fields. Six-month follow-ups on 42 cases revealed that all 42 students were still employed, 28 of those in their original jobs. Average earnings were $43 weekly in jobs as varied as stock clerk, nurse's aide, cab driver, cook, maid, custodian, and machine operator. The follow-up and the opinions of the Project staff members indicate that a cooperative school-rehabilitation program can effectively increase the number of MRs available for gainful employment. (34-item bibliog.) - *C. L. Pranitch.*

547 KUNCE, JOSEPH T.; MAHONEY, ROBERT J.; CAMPBELL, REX R.; & FINLEY, JERRY. *Rehabilitation in the Concrete Jungle.* (Regional Rehabilitation Research Institute, Research Series Number 3) Columbia, Missouri, University of Missouri, 1969, 43 p.

Of 344 cases received in a new rehabilitation program in a "crime-infested" ghetto, 93% had IQ scores below 100, and 58% had IQ scores below 80. The major disability of 45% of the clients was MR. The results of intelligence tests on 293 clients indicated that 1/4 of the scores were below 70, and 1/3 of the scores were between 70 and 80. A significant proportion of the clients were clearly disadvantaged in that they were socially dependent and had limited education and inadequate previous work experience. Counseling techniques were aimed at developing a climate of optimism and action as well as realistic expectations. At times, counselors provided direct action or comment, constructive criticism, and reassurance. Since the majority of the clients could not be immediately placed, educated, or trained, transitional programs were used for treatment and assessment and to enable clients to begin training in a work situation and earn an income. Of the 3/4 of the clients who obtained employment, 10% were in skilled jobs, 1/4 earned initial weekly salaries above the poverty level, and 44% earned a yearly income above the poverty level. The percentage of clients on welfare was reduced from 60% to 40%. IQ, education, and disability were not significantly related to obtaining a job. A 10

factor Rehabilitation Difficulty Index demonstrated a marked and meaningful relation between number of factors present and an individual's chances of obtaining employment. (27 refs.) - *J. K. Wyatt.*

548 PRABHU, M.; & PRABHU, G. G. Occupational therapy with the mentally retarded. *Journal of Rehabilitation in Asia,* 10(2): 21-29, 1969.

Occupational therapy can play an important part in the rehabilitation of the MR. Specific programs should be designed to emphasize the individual's abilities and increase his strengths. It is imperative to have provisions for extensive programs in handicraft, physical training, and recreation. Aids to training include use of incentives, the organization of work into small steps, spaced learning, and overlearning. The progress that an individual makes will be dependent on his level of retardation, temperament, and home circumstances as well as the occupational therapy program and the attitude of the professionals in the field. (24 refs.) *J. M. Gardner.*

All India Institute of Medical Sciences
New Delhi-16, India

549 PHELPS, WILLIAM R. Work placement success for mentally retarded females. *Adolescence,* 4(13):43-58, 1969.

The characteristics of rehabilitated (49 Ss) and nonrehabilitated (40 Ss) MR adolescent girls (mean CA 19 yrs) were compared, and no significant differences between the 2 groups were found for achievement scores (reading, spelling, and arithmetic), verbal and full scale IQ, Vineland Social Maturity Scale scores, or signs of organicity on the Bender-Gestalt. There were no differences noted between the groups for size of city, family income, parental attitudes, client attitudes, or the presence of emotional problems. Significant Chi-square values were reported for social adjustment, realistic level of aspiration, counselor evaluation, and vocational adjustment. (5 refs.) - *J. M. Gardner.*

West Virginia Rehabilitation Center
Institute, West Virginia 25112

550 MORRIS, E. J. A scientific approach to the assessment of the effectiveness of training programmes and learning potential of the mentally handicapped. *Teaching and Training,* 7(2):34-41, 1969.

It is important to keep careful records of progress in education and training programs for the mentally handicapped. At the Fosse Industrial Unit (England) trainees are assessed and grouped according to their needs and abilities. Training is provided in the areas of hygiene, communication, socialization, industrial education, outdoor activities, and handicrafts, and the average level of achievement is measured for each trainee. Other assessment tools include the Gunzberg Progress Assessment Charts, an abilities analysis, and a rate of learning analysis. (No refs.) - *J. M. Gardner.*

Fosse Industrial Unit
Leicester, England

551 KUNCE, JOSEPH T. Vocational interest, disability, and rehabilitation. *Rehabilitation Counseling Bulletin,* 12(4): 204-210, 1969.

The relation between interest in physical ability, vocational interest, and success in job placement was examined among 90 adult males (mean CA = 28, mean educational level = tenth grade) enrolled in a prevocational training program. Interest in physical activity was measured by the Strong Vocational Interest Blank, and the Ss were classified as physically handicapped (paraplegics, quadriplegics) or other disabled (brain injured, MR, mild cerebral palsy). Job success was based on the amount of full and part-time employment following training, and average follow-up periods were approximately 9 months (range: 3 mos to 2 yrs). Success in job placement was significantly related to education ($r = .28$) and disability ($r = -.22$), although the magnitude of the coefficients was small. Among 42 physically handicapped Ss, interest in physical activity was significantly related to an unfavorable outcome ($F = 7.04$, $p < .05$), while this was not the case among those Ss classified as other disabled. Only 33% of the physically handicapped with high interest in physical activity had favorable outcomes in contrast to 71% of the other disabled Ss with similar interest. For those psychologically traumatized Ss, it may be necessary to develop new techniques to improve their job success. (11 refs.) *J. M. Gardner.*

University of Missouri
Columbia, Missouri 65201

552 ROSENTHAL, M. What an employer expects in preparation of the mentally retarded for employment in open industry. *Rehabilitation in Australia*, 6(5):18-20, 24-25, 1969.

Employer expectations of an MR employee include diligence, punctuality, regular attendance, and the ability to assimilate training on one or more operations or sets of duties. Other expectations are that the MR should have the ability to perform his duties with safety to himself, his coworkers, and the equipment, and that he should have the ability to adapt to the working environment without causing disruption of production or affecting morale through personal idiosyncrasies. The ability to perform duties safely is perhaps the greatest obstacle to the employment of MRs in industry. Training for MRs in the understanding of the principles of safety and the dangers of running machinery is imperative. Social education and training in elementary personal hygiene are also essential. (No refs.) - *C. L. Pranitch.*

No address

553 HARTLAGE, LAWRENCE G. Factors affecting employer receptivity toward the mentally retarded. *Rehabilitation Literature*, 27(5):1-2, 1966.

Sixty employers who responded to a 15-item, 5-point attitude questionnaire were matched with 60 employers who were interviewed. One-half of each group received information describing the MR in desirable terms; the other half received data depicting the MR as more capable in some jobs than other workers. Results showed no significant difference in employer attitudes, whether information was received *via* a cover letter or by interview or whether the information focused more upon disability or ability. (No refs.) *A. Huffer.*

No address

554 CLELAND, CHARLES C.; & SWARTZ, JON D. Work deprivation as motivation to work. *American Journal of Mental Deficiency*, 73(5): 703-712, 1969.

Deprivation from work provided strong motivation for work in 15 institutionalized mildly retarded adults. Two groups of 15 working patients were matched for CA, IQ, and job tenure. Control Ss continued their regular assignments, while the experimental group was subjected to a "hedonistic" environment in which food, recreation, and attention were provided on demand. These Ss were told that this was a new kind of activity and that they would continue to receive their regular pay while it lasted. Five psychologists served as participant-observers. Pre- and post-experiment measures were taken on the Thematic Apperception Test, the Holtzman Inkblot Technique, ward ratings, and preferences for different positions. Continuous ratings were made on such behavior as positive work references, curiosity about the study, hedonistic avoidance, and non-participation. Over the course of the study, hedonistic remarks decreased and boredom and work references increased. Sociometric ratings remained relatively stable (ρ = .64), although some differences were noted. Work preferences remained stable for the control Ss, but changed for the experimental Ss (r = -.05). A weight gain of over 7 pounds/S was noted in the experimental group. Most experimental Ss were judged as improved in self-concept, and most indicated happiness to get back to work. Although this study lends support to the idea that work deprivation increases motivation to work, more sophisticated measures are clearly needed. (15 refs.) *J. M. Gardner.*

University of Texas at Austin
Austin, Texas 78712

555 MDPA Project shows success in placing retarded trainees. *Performance*, 17(12): 8-9, 1967.

Two Manpower and Development Training Act projects have demonstrated the feasibility of training MR young men in a skilled and hazardous occupation. MRs were trained and employed as meat cutters, wrappers, handlers, and in other associated trades. Ninety percent of the 65 trainees were employed. The teaching approach was learn by doing, and the safety record was superior to that found in the usual meat cutting course. (No refs.) *A. Huffer.*

556 Retarded worker designs device for shoe factory. *Our Children's Voice*, 22(1):7, 1967.

An MR employee at a Pennsylvania shoe factory designed his own guide for attaching decorations to ladies' shoes. His device, constructed of wood, 2 nails, and 12 eyelets, is now used throughout the factory and costs 24¢ as opposed to $300.00 which the company's device cost. (No refs.) - *A. Huffer.*

557 STOLER, SIGMUND. Retarded men work at harvesting. *Hospital & Community Psychiatry*, 20(12):384, 1969.

Through the Pennsylvania State Employment Service, residents of Selinsgrove State School and Hospital were employed as seasonal workers in the harvest of potatoes, tomatoes, and apples. They were paid the same wages and treated the same as other workers--good preparation for life out in the community. (No refs.) - *E. F. MacGregor.*

Selinsgrove State School and Hospital
Selinsgrove, Pennsylvania 17870

558 COWDEN, KENNETH. The mentally retarded can contribute. *Hospital & Community Psychiatry*, 20(12):395, 1969.

After a training program, 19 MR (average IQ 41) residents of DeWitt State Hospital (California) picked tomatoes on a piecework basis. In quantity, their work was below non-resident standards (from less than 30% up to 75%), but the quality was higher. They improved with practice and learned to make the adjustments which the job demanded. (No refs.) *E. F. MacGregor.*

DeWitt State Hospital
Auburn, California 95603

559 MASSIE, WILLMAN A. The evolution of standards for sheltered workshops. *Journal of Rehabilitation*, 34(3):32-33, 1968.

The development of standards was the most important event for the improvement of sheltered workshops, and to understand this, a knowledge of their historical background is necessary. Standards began their evolution in 1944 with a pamphlet distributed by the U.S. Department of Labor. In 1957, an institute was held to provide an opportunity for cross fertilization of ideas among workshop people. In 1961, Goodwill Industries issued a set of standards. Finally, in 1967, the National Policy and Performance Council (NPPC) developed standards for use in the conduct of federal grant programs. Broad sets of standards developed by NPPC include provisions for areas such as organization, administration, staff, records, and community relations, and these were tested in 3 workshops. To insure the standards are used as goals, grants to improve physical resources, staff, technical assistance, and equipment were established. (No refs.) - *V. G. Votano.*

Rehabilitation Services Administration
Washington, D. C. 20201

560 FENDELL, NORMAN. Adult education in the sheltered workshop--A new dimension. *Digest of the Mentally Retarded*, 5(2):116-118, 1968-69.

Although the cost of continuing adult education for the TMR is seen as prohibitive by many educators, it is much cheaper to train an MR to live in the community than it is to keep him in an institution. A combination of adult education and workshop training at the Manchester Sheltered Workshop (Connecticut) has proved that such a program is not only feasible but much more satisfactory for MRs and their families. (No refs.) *E. F. MacGregor.*

No address

561 FENDELL, NORMAN. Adult education classes in sheltered workshop. *Rehabilitation Record*, 9(1):18-19, 1968.

Clients in the Manchester Sheltered Workshop (Connecticut) have benefited from adult education classes geared to workshop activities. The workshop provides the clients with concrete illustrations of the usefulness of classroom instruction, and workshop requirements suggest to special education teachers the types of lessons most likely to aid the clients in social and job adjustments. (No refs.) - *E. F. MacGregor.*

Manchester Sheltered Workshop
Manchester, Connecticut

562 WALLIN, J. E. WALLACE. Educational status of clients in a workshop and training center for adolescent and adult mental retardates. *Journal of Genetic Psychology*, 114(1):41-62, 1969.

An integrated battery of educational tests was individually administered to 44 MR clients (28 males, 16 females; mean CA 32.9 yrs; mean admission age 6 yrs 7 mos; mean pre-admission Stanford-Binet [S-B] IQ 52.7; mean pre-admission Wechsler-Bellevue IQ 66.7) in an adolescent and adult workshop and training center. Data on the Wallin-Cutsforth Scale

indicated a very wide divergence in achievement in all academic areas. In reading ability, at least 1/4 were of borderline intelligence rather than MR (mean S-B IQ 66.5; mean Wechsler-Bellevue IQ 77.3), and 1/3 were either completely or almost illiterate (mean S-B IQ 45.3; mean Wechsler-Bellevue IQ 44). Tests, which required figure recognition, showing 4 fingers, a variety of simple arithmetic computations, writing one's name, naming and counting the days of the week in order, time telling, and knowledge of weights, indicated that between 13.6% and 80% had not developed dependable skills in these areas. Although all but one S could recognize coins and bills, money concepts were in an embryonic stage and of little practical value. A comparison of IQs and productivity records of Ss employed in either a production center or a production and training center revealed a positive correlation between the average S-B and Wechsler IQs and productivity or earning capacity and a widespread discrepancy between productivity and IQs and academic levels. The findings of this study imply that workshop admission should be based on the evaluation of a number of variables and that workshops should provide on-the-job training and training to improve basic, practical academic skills. (10 refs.) - *J. K. Wyatt.*

311 Highland Avenue
Wilmington, Delaware 19804

563 ALLEN, ROBERT J. Meeting the needs of the older mongoloid individual through sheltered employment. In: Wisconsin Association for Retarded Children. *Mongoloid Conference Proceedings.* (Conference of the Mongoloid Individual, His Family, and His Community, held April 10-11, 1968, Milwaukee, Wisconsin) Madison, Wisconsin, 1969, p. 27-30.

Specific community services should be available to meet the special needs of the adult mongoloid. The community should assume responsibility for the training of the mongoloid, and programs should include evaluation, personal adjustment, specialized training, sheltered employment, and placement. The public must evaluate its attitude toward the MR in terms of special needs rather than rights. (No refs.) - *S. Half.*

564 GOLDEN, GEORGE J.; MARGOLIN, REUBEN J.; STOTSKY, BERNARD A. Rehabilitation and the public. *American Corrective Therapy Journal,* 23(3):86-91, 1969.

To explore community awareness and understanding of rehabilitation, a survey of 405 New England residents was conducted; the survey demonstrated that 56% of those responding were uninformed about state rehabilitation agencies, 17% had a good knowledge of services, 93% considered the physically handicapped person as more easily helped than the mentally ill, and mental illness and MR were regarded as most handicapping. Most of those respondents who were familiar with rehabilitation agencies received their knowledge from the public media. Younger respondents regarded rehabilitation as learning to live with a disability, while older respondents felt that becoming able to earn a living constituted rehabilitation. Older Ss were optimistic about rehabilitation; this was also correlated with being at ease with disabled persons, having lower incomes, and having less education. Lack of public knowledge may be due to boring agency publications, overworked guidance counselors, and the fact that many people subconsciously block out frightening or anxiety-producing information. Motivation was considered primary in successful rehabilitation, but most respondents felt that such motivation must come from the disabled person himself. Recommendations for educating the public include the use of commercial advertising, exposure of the community to the disabled, and establishment of a community education department for each rehabilitation center. (16 item bibliog.; 4 refs.) - *M. Plessinger.*

No address

565 BALLA, JOHN I. The rehabilitation of epileptics. *Medical Journal of Australia,* 1(10):386-389, 1968.

A follow-up study of 82 severely epileptic patients admitted to a rehabilitation center during a 3-year period found that the duration of stay was less than 6 months in most cases, and the patients were discharged to sheltered workshops (20 Ss), outside employment (30 Ss), Commonwealth Rehabilitation Service (one S),

psychiatric institutes (8 Ss), and home (18 Ss). Of those who were sent home or failed at outside employment (12 Ss), most had low intelligence or psychiatric disabilities. The main problem in rehabilitation of the severely epileptic patient appears to be one of MR in combination with psychiatric problems and difficulty in social adjustment. The difficulty of providing adequate accommodations also enters into the failure of rehabilitation. (9 refs.) - *M. G. Conant.*

Royal Talbot Centre
Melbourne, Australia

TREATMENT AND TRAINING ASPECTS--THERAPY

566 MIEZIO, STANLEY. Group therapy with mentally retarded adolescents in institutional settings. *International Journal of Group Psychotherapy*, 17(3):321-327, 1967.

Group therapy is an effective device to use with MRs in an institutional setting. The psychotherapy sessions and consultations with the institutional staff enabled adolescents to enhance their social awareness, improve their self concept, reduce their egocentricity, improve their muscle control, externalize their aggression, and develop appropriate sublimation. In addition, problems in sexual identity were discussed and clarified. The main theme of their lives, separation from home and family, was worked through and accepted to some extent. (No refs.)
A. Huffer.

No address

567 FINE, MARVIN J. Counselling with the educable mentally retarded. *Training School Bulletin*, 66(3):105-110, 1969.

The basic thesis of this article is that counseling services are needed by the EMR child in the schools and that a number of unresolved issues exist regarding counseling with the retarded. The article accordingly reviews related studies, issues, and considerations and also reports critically on a pilot study that utilized a group client-centered approach. Suggestions for additional study are included. (7 refs.)
Journal abstract.

University of Kansas
Lawrence, Kansas 66044

568 BOWDEN, DOUGLAS M.; & ROTHENBERG, MICHAEL B. Comprehensive care of a mentally retarded, adolescent hemophiliac with a tongue-biting tic. *Pediatrics*, 43(1): 19-23, 1969.

Comprehensive pediatric care implies not only medical treatment but also attention to the psychosocial aspects of illness, attitudes of the physician, and communication among the various members of the hospital staff. A 13-year-old boy with MR (IQ 70), moderate hemophilia, and a tongue-biting tic had over 10 admissions to a general hospital. His "tic" was viewed as a behavioral manifestation of anxiety generated by parental discord and maternal smothering. Physicians tended to become anxious in dealing with a chronic, life-threatening disease with psychogenic overtones in a MR boy with demanding and distrustful parents. The hospital staff had an unpleasant stereotype of the patient and tended to be terse and nonsupportive. Intervention by the liaison service helped to establish an ongoing relationship with the family in which dynamics were exposed and dealt with, aided the staff in maintaining a realistic perspective, and led to the development of "orders" to minimize detrimental psychosocial influences. (No refs.) - *E. L. Rowan.*

National Institute of Mental Health
Bethesda, Maryland 20014

569 WEINSCHENK, CURT; & KIRCHNER, DOROTHEA. Verlauf einer klinisch-jugendpsychiatrischen und heilpaedagogischen Behandlung eines 10 jaehrigen Debilen mit einer kongenitalen Legasthenie (Course of a clinical youth-psychiatric and rehabilitation treatment of a 10-year-old mentally retarded child with a congenital legasthenia). *Zeitschrift fuer Heilpaedagogik*, 18(6):335-339, 1967.

A 10-year-old MR boy suffering from congenital legasthenia was treated in a psychiatric youth clinic for eventual admission to a special MR school. Initial internistic, neurological, EEG, and skull X-ray tests revealed no damage, but further tests led to a diagnosis of MR, congenital legasthenia, damage from home environment, and defective emotional development. First attempts in class instruction failed due to S's disinterest, lack of motivation, and compensatory behavior with the S taking interest only in kindergarten activities and upper-grade sports. Subsequent individual instruction led to great progress in reading as well as improvement in attitude, personality, and self-confidence. After 6 months of individual instruction, the S could read up to 40 words of new text and was transferred to a youth home which had a special MR school. Diagnosis of congenital legasthenia in the MR is especially important so that appropriate treatment can be administered. (2 refs.) - *S. P. Glinsky, Jr.*

Hans-Sachs-Strasse 6,
355 Marburg/Lahn, West Germany

570 SCHNEEBERGER-ATAIDE, J. Quelques considerations sur la therapeutique medicamenteuse des situations d'insuffisant rendement intellectuel chez l'enfant (Use of drug therapy in cases of mental deficiency in children). In: *Concilium Paedopsychiatricum*. (Proceedings of the 3rd European Congress of Paedopsychiatry held Wiesbaden, West Germany, May 4-9, 1967.) Basel, Switzerland, Karger AG, 1968, p. 307-308.

Experiments using 394 children with MR and 36 children with normal intelligence but learning difficulties showed that administration of glutamic acid or L-glutamine (optionally with D-amphetamine, pyrithioxine, or vitamin B_6) produced beneficial results in cases of simple oligophrenia attributable to hereditary causes, in cases of MR related to birth trauma, and in a small number of cases where the MR was related to idiopathic epilepsy. Treatment was most beneficial when started at an early age but produced no elevation of the mental level in cases where the IQ was below 50. Administration of γ-aminobutyric acid produced favorable results in cases where MR was due to anoxia during birth, post-encephalitis, or mental degradations following convulsive crises. The effects of amphetamine, nyalamide, and imipramine are difficult to assess since these drugs are commonly used in combination with others. (No refs.)
M. G. Conant

571 ANTON, AARON H.; & GREER, MELVIN. Dextroamphetamine, catecholamines, and behavior: The effect of dextroamphetamine in retarded children. *Archives of Neurology*, 21(3):248-252, 1969.

A standard daily dose of dextroamphetamine was given to 6 institutionalized SMR boys, and the effects were measured in terms of behavioral change and the urinary excretion of catecholamines. Before, during, and after acute (2 days) and chronic (3 weeks) drug phases, urine specimens were analyzed for epinephrine, norepinephrine, dopamine, metanephrine, normetanephrine, vanilmandelic acid, and creatinine. During the acute drug period, there was a nonsignificant trend for a decrease in catecholamine excretion and no observable change in behavior. During the chronic drug phase, there was an increase in urinary catecholamines (only epinephrine was statistically significant) and behavioral improvement (increased environmental awareness) in 2 of the Ss. Apparently, dextroamphetamine has direct stimulating action on the central nervous system and an indirect sympathomimetic effect on the peripheral nervous system. (28 refs.) - *E. L. Rowan.*

Case Western Reserve University
Cleveland, Ohio 44106

572 HODGES, ALTON. Corrective therapy adaptations to the mentally retarded: A program of passive reflex therapy. *Challenge*, 4(4):6-7, 1969.

Passive exercising of 15 SMRs (CA 2 to 7 yrs) reduced their spasticity, and improved their mobility, appetite, rest, and general happiness. Ss were severely brain damaged children who had received only custodial institutional care for their symptoms of spasticity, lack of coordination, and retarded development. Since movement develops from reflexes, each child was passively exercised in these basic movements for 5 to 8 minutes, 5 times a week. Personnel were 15 higher level MR men who participated as pre-vocational trainees in 3 teams, each responsible

for 5 children a day. Spastic children received stretching exercises before each session. The program must be long-term and carefully supervised. (No refs.)
M. Plessinger.

University of Texas
Austin, Texas 78712

573 KIPHARD, ERNST J. Die Foerderung des Bewegungsentwicklung beim geistig behinderten Kind (Improving movement development in the mentally retarded child, Part I). *Lebenshilfe*, 6(3):122-128, 1967.

Development of physical movement also promotes the general development of the MR child. It increases his self-confidence, independence, and will to prove himself, builds upon the simple pleasure of functioning physically, leads directly to an investigation of his environment, stimulates emotional and intellectual growth, effects development breakthroughs during moments of uninhibited joy derived from movement, and furnishes through games a communal and maturing experience which incorporates the MR child more readily into his peer group. Generally, practical exercises should stimulate the child to act, have a goal, be rewarded, be repeated when necessary or successful, be varied, be directed to only one task at a time, exploit the child's own inclinations and interests, take advantage of otherwise useless movements, and begin with accustomed, favorite activities. (2 refs.) - *S. P. Glinsky, Jr.*

Heidenhofer Allee 64,
47 Hamm, West Germany

574 KIPHARD, ERNST J. Die Foerderung der Bewegungsentwicklung beim geistig behinderten Kind (Improving movement development in the mentally retarded child, Part II). *Lebenshilfe*, 6(4):174-180, 1967.

The MR child's movements can be developed by a carefully graduated program of active stimulation of bodily agility and manual dexterity, the former always preceding and developing the latter. All forms of stimulation should take place in an atmosphere of joy and laughter, operate on the principle of reward, be within the child's capability, and be neither started nor continued at any sign of displeasure from the child. Early childhood movement development includes stimulation of arm and leg movements while: in the prone, back, and stomach position; stomach crawling; crawling on all fours; stair climbing; sitting; knee-standing; jumping from the floor in spring-supported harnesses; and pushing chairs as a prelude to walking. Walking, which provides initial indications of underdevelopment or motor or nerve malfunction, is developed by obstacle and orientation exercises, free walking and running, 1- and 2-legged hopping and jumping, running and high jumping, walking on all threes or fours, and using all manner of games and equipment. Splashing and swimming in tepid water, balancing exercises and soccer contribute to general body agility as well as manual and foot dexterity. (2 refs.) - *S. P. Glinsky, Jr.*

Heidenhofer Allee 64,
47 Hamm, West Germany

575 HEINZ, HAROLD W. Dental clinic. *Broadcaster*, Newsletter of the Beatrice State Home, Beatrice, Nebraska, 25(2):1-2, 1969.

MRs at the Beatrice State Home observed National Children's Dental Health Week and "Join the Smile-In." In considering the dental-care needs of MRs, the false idea that primary teeth are unimportant should be dispelled, visits to the dentist should begin at an early age, and MRs, like normal children, should be encouraged to brush after eating. (No refs.) - *J. P. West.*

Beatrice State Home
Beatrice, Nebraska 68310

576 ARONOVITZ, ROBERT; & CONROY, CHARLES W. Effectiveness of the automatic toothbrush for handicapped persons. *American Journal of Physical Medicine*, 48(4):193-205, 1969.

Analysis of the utility of the automatic toothbrush for handicapped persons showed that it is an effective aid in gingival health in handicapped persons. Ss included 40 patients (23 males, 17 females; CA range 7-46 yrs) from the Cerebral Palsy and Epileptic Center and from the Rehabilitation Center of the Ohio State University Hospital. Papillary, marginal, and attached gingiva (PMA) index and cleanliness index were used for each patient. Plaque and debris were also appraised by these evaluations. Group I used the automatic toothbrush for 60 days followed by a conventional hand-held toothbrush for 60 days; the procedure was reversed for Group II. Examinations were made at 30, 60, 90, and 120 days. Data showed that the automatic toothbrush was more effective in reducing gingival

inflammation than was the conventional toothbrush for the 0-60 and 60-120 day test periods. The maxillary gingiva showed more reduction in inflammation than did the mandibular gingiva when the automatic toothbrush was used. The conventional toothbrush was better than the automatic brush in preventing plaque accumulation during the first 60 days, but both brushes seemed equally effective in controlling plaque accumulations during the second 60-day period. No significant correlations were found between dental plaque and gingival health. (18 refs.) - *B. Bradley*.

Ohio State University
Columbus, Ohio 43210

577 MOORE, ERNEST J., II; MILTENBERGER, GERALD E.; & BARBER, PRUDENCE S. Hearing aid orientation in a state school for the mentally retarded. *Journal of Speech and Hearing Disorders*, 34(2):142-145, 1969.

A hearing-aid orientation program initiated at Dixon State School (Illinois) included 98 MRs (CA 7-76 yrs; IQ 9-85). The preliminary program included demonstrations of the hearing process, the use and care of a hearing aid, and determination of severity of hearing loss and reaction to amplified sounds by the staff. Those receiving hearing aids attended an orientation course to acquaint them with the benefits and limitations of their devices; the names of the major parts of the aid and how to replace them; proper cleaning methods, and the location of the repair station. Consultation with cottage attendants on patient behavior and progress in the preliminary and advanced stages of the program helped ensure their cooperation in supervising the S's use and care of the hearing aid. More intensive therapy was given those Ss for whom the basic program proved inadequate. (5 refs.) *E. F. MacGregor*.

University of Wisconsin
Madison, Wisconsin 53706

578 LESAK, ELEANOR. Music activities for the severely mentally retarded and preschool mentally retarded. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Illinois Mental Health Department, 1969, p. 97-101.

Music activities can help MRs to occupy their leisure time purposefully and to become adequately adjusted, socially acceptable, and capable of self-care. Since music offers a subverbal means of communication, it can be a method of establishing contact with nonverbal and preschool MRs. Songs may be used to introduce various school activities. Music activities in regular learning sessions may provide motivation and encouragement and enhance auditory training. Action songs can further motor development and promote the development of body concepts and the identification of body parts. SMRs, even those with the lowest mental ages, will respond to rhythm in some way. In addition to the creative satisfaction which music brings, it can help establish a feeling of order which reduces inner turmoil and anxiety. (6 refs.) *J. K. Wyatt*.

579 SCHULER, NANCY. Activity programs. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Illinois Mental Health Department, 1969, p. 102-104.

Activities for the MR should be educational and should enhance mental and physical development. A well-rounded activities program should be based on the individual's background, education, ability, and physical condition. Most activities can be modified or amplified to meet individual needs. Group activities help MRs learn the value of team effort and identify their individual contributions to the total product. Among the duties of an activities director are the recruitment and training of volunteers, the preparation of materials, the collection of donations, the solicitation of supplies and equipment, and the design of the program. (No refs.) - *J. K. Wyatt*.

PROGRAMMATIC ASPECTS--PLANNING AND LEGISLATIVE

580 JUBENVILLE, CHARLES P. Programming for severely mentally retarded. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Illinois Mental Health Department, 1969, p. 40-46.

The goals and objectives of programs for SMRs should be habit formation and socialization. Individual training programs should have short and long range goals, and these programs should be based on a complete social history, medical evaluation and history, and psychological evaluation. Activities related to short-range goals should be designed so that they build toward the long-range goals. Short range goals should be stressed in the child's daily training program. The environment should be conducive to training activities; the environment for young SMRs should be controlled and programs for them should be highly structured. Sedentary and physical activities should alternate at frequent intervals. The principles of persistency, consistency, and continuity are vital to a habit development program. The children's maturation and readiness should be observed, and when readiness for a more complex activity is noted, it should be introduced. The progress of SMRs in a group training program should be evaluated so that parents can be informed about progress and decisions about new programs and program emphasis and procedures can be made. (5 refs.) - *J. K. Wyatt.*

581 SLOAN, WILLIAM; & SCHEERENBERGER, RICHARD C. Planning local services and programs for the mentally retarded. In: Scheerenberger, R. C. ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Illinois Mental Health Department, 1969, p. 174-178.

To provide comprehensive services for MRs, Illinois needs to increase its programing at local and subzonal levels. At the present time, there are 8 zones and 75 subzone planning areas. The population of subzones ranges from 75,000 to 200,000. Each subzone has a hub city and consists of aggregates of counties, townships, or community areas. During the next year, Zone Advisory Councils on MR and State and local agencies are to determine local needs for comprehensive services, determine available generic and specific resources, and establish local service priorities and the most effective means of obtaining them. In addition, the Councils and agencies will consider subzonal needs in relation to total zone and state planning and make programing recommendations to the Interdepartmental Committee on MR. The planning and evaluation of services for MRs will require a continuous dialogue at community, county, subzonal, zonal, state, and Federal levels. (5 refs.) - *J. K. Wyatt.*

582 GOODWIN, BERNICE G. Programming and the metropolitan public schools. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Illinois Mental Health Department, 1969, p. 179-184.

A global approach to the needs of MRs which is based on the school-community-agency concept and provides continuity of planning and programing should be initiated and developed. Schools must also plan to meet the special individual needs of each MR child, and school personnel should work with parents or community agencies. Although some metropolitan services for MRs and their families are imaginative and innovative, all are too fragmented and do not recognize the child as a total functioning being. Current services for MRs in Chicago schools provide 650 EMH classes and 50 TMH classes for 9,000 pupils. Anticipated needs are for 1,200 EMH and 120 TMH classes. Lack of trained personnel is a major problem. Three administrative areas will be established in Chicago to meet immediate and projected education needs. To increase knowledge of the MR and develop new categories of professional workers who will be competent in the development of community programs and services, professional training in behavioral and medical disciplines should include background knowledge and work experience with the MR. (1 ref.) - *J. K. Wyatt.*

583 EDUCATION FOR HANDICAPPED BUREAU. *Planning for the Evaluation of Special Education Programs: A Resource Guide*. Washington, D. C., U. S. Office of Education, 1969, 47 p.

This resource guide provides assistance to educators and administrators who must make decisions about initiation, promotion, or judgment of a program for handicapped children. Educational projects contain 3 parts: input (what the child already knows), interaction (teacher, administrator, and student activities), and output (end result of the study). After the objectives have been established, they must be developed in behavioral and exploratory terms while remaining realistic and relevant. Objectives determine the method of data collection; collection methods include personal judgments, pictures, tapes, checklists, pre- and post-tests, standardized tests, and case studies. Evaluation and budget planning interact to produce more effective and economical project development, since the budget relates to all phases of the evaluation process. Project consultants review previous findings, plan objectives, provide resources, analyze data, and write final reports; whereas, state consultants meet with directors, visit projects, formulate an evaluation plan, and write the over-all report. Help can be obtained from the 14 Instructional Material Centers for handicapped children and the ERIC Clearinghouse on Exceptional Children. Methods which may be used when reporting results include the standard format, graphs, cartoons, illustrations, tape-slide kits, 8 mm film, and audio-video tapes. (13-item bibliog.) - *V. G. Votano*.

CONTENTS: Evaluation for Decision Making (McIntyre); What and When to Evaluate (Meierhenry); Objectives--Guidelines for Action (Hofmann); Data Collection (Hofmann); Budget Planning and Evaluation (Hofmann); Help and How to Use It (Baldwin & Fredericks); Reporting and Dissemination (Meierhenry).

584 SWAAK, A. J. Een bijdrage aan de gedachtenvorming t.a.v. een regionale organisatiestructuur in de zorg voor zwakzinnigen (A contribution to the planning for a regional structural organization in the care of the mentally retarded). *Tijdschrift voor Zwakzinnigheid en Zwakzinnigenzorg*, 5(2):47-58, 1968.

A central organization for coordination in planning is important not only for organizational reasons but because the welfare of the MR is better served in this way. In Holland, at present, a number of diverse institutions and private groups are responsible for the diagnosis, care, and rehabilitation of the MR. Often this results in the overlapping of functions or in oversight of particular cases. Centralization or a central organization would provide necessary data and coordination; this should no longer be left to chance. (No refs.) - *S. L. Hamersley*.

No address

585 MOORING, IVY M. Planning as a tool of prevention for the mentally retarded. *Mental Retardation/MR*, 7(2):41-45, 1969.

Los Angeles County developed a master plan to provide comprehensive and coordinated services for the MR in the community. In order to provide the required spectrum of services, continuity of care, and lifelong supervision, the MR Service Board was established by a Joint Powers Agreement. Representatives of all public and private generic agencies serving the MR are involved in one planning and coordinating effort. Community involvement was a key factor in the development of the master plan. The major planning units include population, geographical areas, quality and quantity of services, and a delivery system that provides a fixed point of entry for the MR seeking services and a return when additional services are needed or when there is a breakdown in the existing ones. Plans are for a Regional Center Counselor to be assigned in each of the public health districts throughout the country which should enhance the opportunity for most of the MR to remain in the community. (No refs.) - *S. Half*.

Mental Retardation Services Board
Los Angeles, California

586 ANDERTON, N. E. The intellectually handicapped: The N.S.W. scene. *Rehabilitation in Australia*, 6(3):11-12, 1969.

Volunteer organizations and governmental agencies in New South Wales (Australia) have expended over 10 million dollars on capital work during the last 4 years and now have facilities (schools, workshops, and residences) for 8,271 MRs; however, places are needed for over 40,000 MRs. Presently, there are 77 schools (2,780 places), 42 workshops (1,086 places), and 35 residences (4,405 places with 3,000 in psychiatric hospitals). It is estimated that 16,260 MR need school placement, 17,500 need workshop placement, and 6,250 need residential placement. (10 refs.) - *A. Huffer*.

No address

587 OREGON. STATE EDUCATION DEPARTMENT. *Impact of the Title VI Programs in the State of Oregon.* Teaching Research Division. Salem, Oregon, 1968, 168 p.

The State of Oregon, with $128,794 in funds awarded under Title VI of the Elementary and Secondary Education Act of 1965, initiated 20 programs involving 625 handicapped children (preschool through secondary school) during the summer of 1968. The programs, organized by etiological types (7 EMR, 4 TMR, 5 speech and hearing, 2 deaf, 2 emotionally disturbed) were developed in areas of particular handicaps where school districts had inadequate provisions or where no special education services were available. Total cost of the projects averaged $207/pupil. The 11 MR programs ranged in cost from $47 to $500/student with the average being $151/child. Of the EMR programs, 3 were concerned with physical fitness, 2 with curriculum enrichment, and one with on-the-job-farm work training. The TMR programs were similar in content, 3 engaged in physical fitness and one involved a sheltered workshop program of work activity, arts and crafts, and academics. Success of each program was evaluated in 3 ways: the number of children served; the cost of the program; and the impact on the learning of the children. Objective instruments proved 2 TMR physical fitness programs to be the most successful. Important gains in motor development were evidenced by the MRs enrolled in those programs. In general, objective analyses of all the programs and the measured gains of the enrollees demonstrated the merits of the programs. (No refs.) - *C. L. Pranitch.*

CONTENTS: Evaluation Plan; Project Descriptions; Results; Recommendations.

588 EDUCATION FOR THE HANDICAPPED BUREAU. *Resumes of Projects for Handicapped Children Funded under the P.L. 89-313 Amendment to Title I, ESEA Fiscal Year 1968.* Washington, D. C., U. S. Office of Education, 1968, 182 p.

Resumes of approved projects and programs for handicapped children for the fiscal year 1968 are categorically listed by state, state agency, and by each school involved in the project. The projects were funded by 21.5 million dollars and were authorized under the P.L. 89-313 amendment to Title I, Elementary and Secondary Education Act. This publication is structurally arranged, organized, and equipped with an index and key which should be of assistance in locating specific projects. The synopsis of state-approved projects includes the type of handicapped youth served, the number of children involved, the number of new personnel employed, the number of new teachers, the number of states reporting, the number of projects reported, and the cost of the projects. A number of projects reported service activities or components which are outlined. (No refs.) - *S. Half.*

589 EDUCATION FOR THE HANDICAPPED BUREAU. *Resumes of Selected Projects for Handicapped Children Funded under the P.L. 89-313 Amendment to Title I, ESEA and Title VI-A, ESEA: Fiscal Year 1968.* Washington, D. C., U. S. Office of Education, 1969, 104 p.

Definitions and explanations are given of the Elementary and Secondary Education Act, Title VI-A (Preschool and School Programs for the Handicapped) and Public Law 89-313 Amendment To Title I (State Operated And Supported Schools For Handicapped Children). Resumes of projects considered outstanding by state education agency coordinators are described. The projects and programs are listed according to state and identify the state education agency person responsible for administering a particular program. Title VI-A and P.L. 89-313 each involve over 3 million dollars. Title VI-A represents 164 projects in 43 states, the District of Columbia, and Guam. P.L. 89-313 represents 66 programs in 37 states and the District of Columbia. These projects include 64 programs dealing specifically with MR, 34 with the hard of hearing and deaf, 15 with the multiply handicapped, and 13 with the emotionally disturbed. (No refs.) - *S. Half.*

590 MASSACHUSETTS. MENTAL RETARDATION DIVISION. *Plan for Mental Retardation Facilities Construction Program.* Boston, Massachusetts, 1968, 109 p. $2.56.

In 1967, the Massachusetts Division of Mental Retardation initiated a 10-year, MR facilities construction program. Top priorities of the program were the elimination of back wards in the state schools, adequate facilities and programs in 37 areas (including 12 additional Regional Centers) to serve 20,000 community based individuals, and the development of therapeutic and educational facilities in residential establishments to meet the needs of an eventual population of 5,500. Each Regional Center will provide residential care for 200 and will provide or supervise programs for 800 community-based persons. Center programs will provide family counseling, diagnostic services, day camping, therapy, education, recreation, vocational training, and sheltered workshops. Residential vocational training centers are planned for

2 areas of widely scattered population, enabling clients to train during the week and return home for the weekend. To provide services from onset to full habilitation for each MR and his family, the following community-based programs are required: 150 half-day nursery classes, 75 full day classes, 37 vocational centers, 21 sheltered workshops, and 37 community recreation programs. (No refs.) - *C. L. Pranitch.*

CONTENTS: Residential and Related Facilities for the Mentally Retarded, under Construction or in the Planning Stage; Advisory Council; Massachusetts Mental Retardation Planning Project; Regions and Areas; State Map; Definitions; Instructions; Introduction to Generic Agencies Summary; Generic Agencies Summary; Providing Alternatives Rather than Ultimatums; The Program Priorities; Special Classes for the Trainable and Educable.

591 ROCHESTER ARCHITECTURAL BARRIERS PROJECT COMMITTEE. *Architectural Barriers Legislation for Aiding the Handicapped from the Code of the City of Rochester, New York.* Spencerport, New York, General Code Publishers, 1967, 18 p. (Price unknown)

The building code of Rochester (New York) was amended in 1967 to aid the handicapped in use of public facilities. Special architectural compulsory requirements include access and travel routes, seating, elevators, and toilet rooms. Handicapped persons are defined as nonambulatory, semiambulatory, visually handicapped, deaf or hard of hearing, and persons with faulty coordination or reduced mobility. The rules apply to all new structures classified as public, institutional, transportation terminals, large assembly halls, business buildings higher than 2 floors, hotels, motels, dormitories, shopping centers, and funeral homes. All such structures must have at least one non-skid walkway uninterrupted by steps. Measurements and other criteria are specified for doors, elevators, and ramps. At least one toilet room is to be equipped with bars and low basins. Auditoriums must reserve 1% floorspace for wheelchairs. Non-compulsory recommendations include low-mounted telephones, low drinking fountains and light switches; telephones with volume amplifying attachments, visual fire alarms for the deaf, audible alarms for the blind, and special door knobs to warn visually handicapped persons of dangerous equipment in room. (No refs.) - *S. Markworth.*

592 ILLINOIS ASSOCIATION FOR THE MENTALLY RETARDED. Legislative Manual for Associations for the Mentally Retarded in Illinois. Chicago, Illinois, 1969, 17 p. Mimeographed.

Citizens desiring legislative action in the field of mental health are encouraged to take appropriate action through their elected representatives. The Governmental Affairs Committee of the Illinois MR Association will have as its primary responsibility the circulation of pending legislative actions affecting MRs to the local MR associations and their memberships. In addition, the association receives information from local organizations and coordinates it with the legislators. It is the responsibility of each citizen, knowledgeable in the needs of the MR, to educate government officials through personal interpretation of pending bills. Specific instructions are provided on proper correspondence, whether it be by telephone, letter, or personal visitation. Included is a general account of how a bill becomes a law as well as a complete listing of all Illinois Senators and House members and addresses. (No refs.) - *K. H. Vogt.*

593 JACOBS, AUGUSTUS M. Legal aspects. In: Wortis, Joseph, ed. *Mental Retardation: An Annual Review--Volume I.* New York, New York, Grune & Stratton, 1970, p. 250-261.

The last 20 years, the Era of the Parents' Movement, has been a period of progress for laws affecting the MR. There have been noteworthy legal trends toward a partnership between government and private agencies for the provision of a broad program of community services for the MR including better forms of guardianship and other legal protection and recognizing that confinement must be combined with treatment. Among the significant changes in New York have been the provision of educational services for TMRs, the establishment of a Joint Legislative Committee on MR and a research institute for MR, the adoption of a new Vocational Rehabilitation Law which includes the MR, changes in the Social Welfare Law which make adult MRs eligible for aid to the disabled, and changes in the entry requirements of and educational opportunities provided by residential facilities. Statutory changes in New York criminal laws require that the voluntary nature of confessions by MRs be carefully established and that MRs be aware of the nature, consequences, and wrongness of their conduct before they can be held criminally responsible. Important Federal legislation has included the Federal Vocational Rehabilitation

Act of 1955, the Maternal and Child Health and MR Planning Amendments of 1963, the MR Facilities and Community Mental Health Centers Construction Act of 1963, the Community Health Services Extension Amendments of 1965, the Elementary and Secondary Education Act of 1965, the Social Security Amendments of 1963 and 1965, and the 1966 amendments to the Fair Labor Standards Act. There has been a general decrease in new legislative provisions for the MR in New York in the last 2 years, and Federal legislation has been directed toward the extension of existing programs. (47 refs.) - *J. K. Wyatt.*

594 CANADIAN MENTAL HEALTH ASSOCIATION. *The Law and Mental Disorder: A Report on Legislation and Psychiatric Disorder in Canada--Three: Criminal Process.* Toronto, Canada, 1969, 79 p. $2.90.

A Committee was appointed in Canada to examine laws, both Federal and provincial, for their effect on mental illness and to determine the effect of mental illness on the civil liberties of the individual. In addition, the committee was to examine the effect of mental disorder on criminal procedure in the court. Psychiatry and criminal law are related in phases including pre-offence, pre-trial, pre-conviction, and post-conviction. Two problems in determining the dangerousness of an individual are the paucity of data on which to base expert opinion and the question of how serious the danger is which is to be prevented. There is a serious shortage of psychiatrists who can give assistance to the courts. In determining the fitness of an individual to stand trial, the criteria include his capability of making a rational defence, his capacity to understand the proceedings, and his comprehension of his own situation. Proposals for changing present laws suggest better facilities for determining fitness, exact procedure for determining fitness, and postponing the question of fitness until the trial ends. After fitness is established, the court should determine the degree of culpability, give an appropriate disposition, and determine corrective measures and controls for those who are found not responsible to any degree. At the present time, the Criminal Code of Canada makes no provision for a special plea where insanity is the defence. For dangerous sex offenders and habitual criminals, the Criminal Code provides for indeterminate detention which results from a special hearing before a judge without a jury. Recommendations of the committee include amendment of the Code to allow forensic psychiatric services, provision of the right to empower a justice of the peace or magistrate to conduct preliminary inquiries, authorization of the court to postpone the trial, and provision for appeals from verdicts of acquittal because of insanity. (15 refs.) *V. G. Votano.*

CONTENTS: The Relationship between Criminal Law and Mental Disorder; Psychiatric Services to the Courts; Fitness to Stand Trial; Mental Disorder in Persons in Custody before Trial; Criminal Responsibility; Indeterminate Detention: The Habitual Criminal and Dangerous Sexual Offender; Indeterminate Detention: Those Held under Warrant of the Lieutenant Governor; Correctional Institutions; Recommendations.

595 BECKER, THOMAS T. *Child Protective Services and the Law.* Denver, Colorado, American Humane Association, 1968, 23 p. $0.35.

There has been a decisive trend over the last decade toward the adoption of the philosophy of individualized treatment and toward more legalized and fewer informal procedures in the juvenile courts. The Supreme Court decision in the Gault case held that in an adjudicatory hearing accused juveniles must receive proper notice, be allowed to avail themselves of the privilege against self-incrimination, have the right to confront and cross-examine witnesses, and have the right to representation by counsel. This decision does not specify rules for probation or commitment nor the manner in which these rights apply to those steps which precede an adjudicatory hearing. Neglect proceedings may result in the parent's loss of custody of a child or in the use of coercive powers by the court to control future conduct. The juvenile court laws of some states provide that the petition need only state that a child is neglected, and parents are often not encouraged to retain counsel. In the forseeable future, it is predicted that counsel representation of respondents in neglect cases will become the rule rather than the exception. Juvenile courts need more and better auxiliary services. The requirements of due process mean that protective service workers must be prepared to meet more stringent tests in regard to adequacy of evidence. Protective agencies should provide legal consultation to help their staffs prepare cases for court processing. Protective agencies should also supply legal representation for staff appearing in court on behalf of a neglect petition. (61 refs.) *J. K. Wyatt.*

596 YARBOROUGH, RALPH W. The Learning Disabilities Act of 1969: A commentary. *Journal of Learning Disabilities*, 2(9):437-440, 1969.

The Children with Learning Disabilities Act of 1969 would provide additional research for more effective methods and materials to improve and enhance the education of handicapped children with specific learning disabilities. Model centers for testing and educational evaluation could materialize and programs for teacher training and specialists could be implemented. Only 2 of the 6 million handicapped children are receiving educational services, and only 18% of the 1 1/2 million children with specific learning disabilities are being provided with adequate assistance. The Federal government should play a significant and vital role in this much needed, but neglected, area. (No refs.) *S. Half.*

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PROGRAMMATIC ASPECTS--COMMUNITY

597 LIPPMAN, LEOPOLD. Community organization: U.S.A. In: Wortis, Joseph, ed. *Mental Retardation: An Annual Review--Volume I.* New York, New York, Grune & Stratton, 1970, p. 239-249.

Major developments in program and organizational changes in services for the MR from 1960 to 1969 included the development of a community continuum of services, the development of partnerships between State and local governments, public and voluntary agencies, and Federal and State governments, the reduction of infant mortality and some types of MR and the prolongation of the lives of MRs, and a new recognition of the sociocultural causes of MR. The development of community services has been facilitated by the establishment of the National Association for Retarded Children and by provisions for comprehensive planning programs for MR on Federal and State levels. Comprehensive planning for MR has varied from state to state; however, there have been substantial and significant unifying influences which appear to outweigh the differences. The larger states have adopted the concept of a regional center which brings services to people and involves community participation in the determination of programs and policies. Although the rate of advance for services for the MR is slowing, the gains of the past decade provide permanent mechanisms for coping with its social challenge. These gains include continued Federal funding, state comprehensive plans, university-related facilities, and community mechanisms. Among the major unsolved problems are the rising demands of an increasingly complex society, the lengthening life span, the changing nature of state residential institutions, the conflict between employment for the MR and automation, and public acceptance of the MR. (46 refs.) - *J. K. Wyatt.*

598 DYBWAD, GUNNAR; & DYBWAD, ROSEMARY F. Community organization: Foreign countries. In: Wortis, Joseph, ed. *Mental Retardation: An Annual Review--Volume I.* New York, New York, Grune & Stratton, 1970, p. 224-238.

Although programs and services for the MR have increased in recent years and some figures on progress are very impressive, they still do not meet existing needs, and even countries with advanced programs have major shortcomings. The lack of and need for research evidence on which community services can be based is reflected in the finding that, even though they serve the same clientele and have the same program objectives, different countries have strikingly different patterns of services and facility designs. Among the services which have been introduced or increased are early education outside the home, screening examinations, school programs for older preschool children, elementary school programs, vocational education, work training, hostels for adults, adult education, and recreation. Problems in community services for MRs include a lack of systematic

case finding, the financial demands on the family, transportation, a lack of trained manpower, and the unimaginative and insensitive architectural designs of many facilities. In the years following World War II, associations for the MR spontaneously appeared and have stressed the importance of scientific and technical services, trained personnel, and research. In recent years, the ministries of various countries have begun to realize the MRs must be included in their programing. Although they lack trained personnel and adequate financial resources, the developing nations are in serious need of primary and secondary prevention programs. The Ad Hoc Interagency Meeting on the Rehabilitation of the Disabled has recently begun to include the MR and coordinate its efforts on an international level. (64 refs.) *J. K. Wyatt.*

599 BECK, CHARLES E.; & MURPHY, WILLIAM K. Basic considerations in developing community service for the mentally retarded. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers.* Springfield, Illinois, Illinois Mental Health Department, 1969, p. 168-173.

The responsibility for adequate services for the MR should be primarily shared by existing generic agencies. A limited number of necessary specialized services should be developed so that a broad array of services can be provided for MRs at the community level. However, the role of specialized agencies must be well-defined to prevent confusion and inappropriate referrals. Among the specialized services developed in Zone V (Illinois) are a community day center and a short-term inpatient training program. Future plans are for effective work in the area of primary prevention, the application of treatment and prevention methods which have come from recent genetic and medical progress, and the discovery of ways of protecting children from negative experiences related to the incidence of MR. (3 refs.) - *J. K. Wyatt.*

600 SHAFTER, ALBERT J. The needs of the mentally retarded in a rural setting. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers.* Springfield, Illinois, Illinois Mental Health Department, 1969, p. 185-189.

The unmet needs of MRs in rural communities are affected by parent attitudes and a lack of effective programing. A study in Iowa revealed that, until recently, rural families had fewer first admissions to institutions. However, the difference between urban and rural admissions is decreasing; this appears to be related to changing rural values. Farm families are adopting urban values and are now asking for continuing programs of services in addition to diagnostic facilities. Among the obstacles to effecting programing for MRs in rural areas are a lack of articulate spokesmen in health and mental health areas on a national and local level, failure to assign leadership responsibility for the extension of services to rural areas, and the need for financing from agencies and organizations outside the community. (5 refs.) *J. K. Wyatt.*

601 WENZELL, VICTOR P. Principles in rural planning for the retarded. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers.* Springfield, Illinois, Illinois Mental Health Department, 1969, p. 190-193.

Plans for coordinated services for MRs living in rural areas require state level direction, coordination, and financing, a flexible, open-ended organizational framework, and administrative patterns that operate in harmony with existing local services. The structure of state and local services may need to be modified to facilitate effective programing and administration. Since much planning comes from private organizations, parent groups, fraternal societies, and legislators, extraordinary professional leadership to coordinate these efforts is required. The financial support of rural services requires the use of an excess cost formula, the encouragement of local incentive, and State assistance for capital and operating costs. To meet the needs of MRs in sparsely populated areas, a wide variety of techniques and innovations in the areas of transportation, personnel training, residential and outpatient facilities, and communication need to be explored. (5 refs.) - *J. K. Wyatt.*

602 RENZAGLIA, GUY A.; & SHAFTER, ALBERT J. Satellite programs for the retarded in rural areas. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers.* Springfield, Illinois, Illinois Mental Health Department, 1969, p. 211-216.

To provide adequate developmental and work training services for MRs in Southern Illinois, a comprehensive central coordinating facility and 5 to 8 satellite units are being

developed. The central facility will provide assessment as well as training and development for MRs. It will contain assessment, developmental training, work adjustment, and skill training units and will provide job development, placement, counseling, on-the-job training, terminal work, and satellite development and coordination services. The center will maintain constant liaison with communities to stimulate them to provide for their MR citizens. All area clients will be processed and evaluated through the central facility. The center will be responsible for recruiting and training staff for satellite facilities, procuring and administering subcontracts, and purchasing supplies, materials, and equipment. Satellite units will serve 16 counties. Some will be sheltered workshops while others will be training centers, day care and recreational programs, or multiple programs. (6 refs.) - *J. K. Wyatt.*

603 PARKEN, D. S. Adult training centres in a rural county. *Teaching and Training*, 7(1):2-9, 1969.

Adult training centers are being established in sparsely populated Devon (England) to provide maximum habilitation of MR and physically handicapped persons with available money. Facilities integrate physically handicapped and MR Ss since they work well together. In addition, this eases the financial burden. Field workers decide if an institution will meet the trainee's needs, and a panel of a doctor, an occupational therapist, and a center supervisor decide on a suitable program in cooperation with the field worker. Facilities were initially planned for 1.2 trainees/1,000 people; these were to include .9 MR, .2 physically handicapped, and .1 mentally ill. The trainee must live nearer than 1 1/2 hours away from the center which should have at least 50 trainees. Hostels house no more than 30 persons of both sexes. Trainees are treated as normally as possible and work with factory-line methods on sub-contracts from industry. Trainees have a month trial before being discharged to permanent jobs; this avoids disappointment if they are not hired. Rehabilitation units provide initial evaluation of trainee needs. (No refs.) *M. Plessinger.*

No address

604 GREEN, MORRIS. A new arrangement for hospital services: The parent-care pavilion. *Pediatrics*, 43(4):486-487, 1969.

The parent-care facility should not be a substitute for traditional inpatient care, but should be fully integrated with the ambulatory department of the hospital, the pediatric rehabilitation services, and a functioning recreation program. There should also be a parent education center involved in achieving family-centered health care, including preventative medicine. If the parent-care facilities operate in close cooperation with the mainstream of medical education and patient care, this unit will provide a flexible component of enriched health services. (3 refs.) - *M. G. Conant.*

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605 PROBSTEIN, IRWIN. Meeting the needs of the older mongoloid individual through adult day care. In: Wisconsin Association for Retarded Children. *Mongoloid Conference Proceedings*. (Conference of the Mongoloid Individual, His Family, and His Community, held April 10-11, 1968, Milwaukee, Wisconsin). Madison, Wisconsin, 1969, p. 31-34.

Legislative action has implemented the basic philosophy of the Wisconsin Division of Mental Hygiene by providing adult day care programs and community services to meet the special needs of the older mongoloid individual. This gives direct service to the individual and his family in a program based on innovation. (No refs.) - *S. Half.*

606 HOFF, ELAINE McNAB. Educational evaluation of the child in a day center for the mentally retarded. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Illinois Mental Health Department, 1969, p. 108-116.

The precise evaluation of the training progress of an MR child should see if the child has learned what was being taught, advise parents of the child's progress, encourage a coordinated home and school training program, and evaluate the appropriateness of the curriculum and teaching methods. Conventional report cards should not be used with TMR and SMR children. The Cain-Levine Social Competence Scale provides measures of self-help, initiative, social skills, and communication which can be used in parent conferences, to select children for programs, and as a basis

for curriculum planning and research. The Vineland Social Maturity Scale evaluates the child's ability to look after his practical needs. The TMR Performance Profile includes evaluations of social behavior, self care, communication, basic knowledge, practical skills, and body usage. Reports to parents should be formulated in terms of the school's objectives. (8 refs.) - *J. K. Wyatt.*

607 SPRINGER, MERLE E. Implications of family boarding home provisions for the retarded. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Illinois Mental Health Department, 1969, p. 138-150.

Foster family care should be selected for an MR child when it seems to meet the child's needs better than the family situation in which the child is presently living. It should be adopted only after the child's own home has proven ineffective even when supplementary services were provided. When a child is placed in a foster home, a whole new complex of relationships must be developed. Among these are new parental relationships for the child, a redefinition of the natural parents' responsibilities, increased responsibility by the social agency for the child and family, and community acceptance of the MR child. Parents of handicapped children, parents seeking to extend their parental roles, and professionals who have an interest in children with handicapping conditions seem particularly suited to the provision of foster care. Families who have children of their own tend to make better foster parents. (10 refs.) - *J. K. Wyatt.*

608 VANIER, JEAN. Homes for retarded adults. *Deficience Mentale/Mental Retardation*, 19(2):2-5, 1969.

One alternative to large residential institutions for the MR is the creation of a community of small homes within an existing community. This should decrease the dehumanizing effects of large institutions and lead to increased levels of functioning. Ideally, these homes would house residents of varying ages, and applicants would be carefully screened and prepared for this type of living. (No refs.) - *J. M. Gardner.*

L'Arche
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609 LIPSETT, RENE. Hospital-based home care service for the mentally retarded. *Deficience Mentale/Mental Retardation*, 19(1): 2-6, 1969.

Volunteers serve preschool MRs living at home by making 1 1/2 hour visits/week to direct activities and support parents' efforts. The Canadian Association for the MR set up the Home Care Service after recognizing that MR at home learned and developed best when parents understood their role in their child's development. Volunteers are recruited from existing organizations and are trained in 4 2-hour sessions with psychiatrists, psychologists, pediatricians, social workers, nursery school teachers, and occupational therapists. Volunteers are supervised by a social worker, an occupational therapist, and a nursery school teacher who meet with the volunteers and the Montreal Children's Hospital Guidance Clinic's professional staff each month to discuss the patients. The MR is first tested at the Clinic, so that the volunteer program will suit the individual and yet be compatible with the Clinic's professional treatment. As older volunteers gain in experience, they demand more information on MR concepts and theories. (No refs.) - *M. Plesesinger.*

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Montreal, Canada

610 LEV, L. JAY. Organisation and design of a learning centre's approach for children with specific learning disabilities. *Slow Learning Child*, 16(1):33-36, 1969.

The use of learning centers in a class for students with learning disabilities gives individual instruction, success experience, and independence that can not be taught in skill-oriented classes. The learning centers are in a classroom with 7 large round tables, each with individual daily work for each child who decides the time and length of visit to the center. Each child must visit each center every week. The teacher visits each center to direct individuals in needed skills in listening, language arts, science, arithmetic, reading, art, and visual-motor perception. At the centers, the child is able to use his senses to explore, progress at his own rate on activities which will carry over into daily life, succeed, evaluate his own success on projects he initiates, develop sense of achievement, discipline, and motivation, and work with the teacher as

needed. Although 10% of the day can be classroom instruction, the new concept is for individual education. (3-item bibliog.) *M. Plessinger.*

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611 JONES, PHILIP R. Transportation services for the retarded. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Illinois Mental Health Department, 1969, p. 161-166.

Among the methods of transportation which can be used to transport MRs are public transportation services, volunteer vehicles and drivers, private cars, taxis, station wagons, carryalls, and school buses. Transportation requires scheduling, the provision of maximum safety equipment, adequate insurance coverage, and drivers who like children. Owned equipment seems to be the most favorable transportation method in terms of fewer problems, least cost, and greater control. Overall costs can be reduced by competitive bidding. (1 ref.) - *J. K. Wyatt.*

612 FAULKNER, R. E. Mentally handicapped children. *British Medical Journal*, 1(5642):505-506, 1969. (Letter)

A supervised, structured opportunity class for handicapped children provides the stimulus of nursery activities, enables the MR child to participate with normal youngsters, and simultaneously offers support to their mothers. This somewhat compensates for the lack of adequate play-group facilities and programs which are essential for younger MR children. (No refs.) - *S. Half.*

613 CALLISON, M. K. Rehabilitation in Memphis--A community in action. *American Corrective Therapy Journal*, 23(3):78-81, 1969.

Memphis (Tennessee) developed rehabilitation services with help from many organizations including a women's philanthropic group which helped to develop a cerebral palsy facility with outpatient facilities and a staff from the medical school; transportation was provided by the Easter Seal Society. An old VA hospital was converted to a rehabilitation center. Another women's group supports a school for MR aged 4 to 7 years, and the university operates a child development center for MRs. In addition, the university is constructing a $4.5 million facility to widen the scope of services. The Goodwill Industries operate a sheltered workshop for the MR, and the Health and Welfare Planning Council handle referrals. The Inter-Agency Council controls communication and fills service gaps. Recommendations are that the centers work closer with hospitals, that more transportation be provided, that professionals be encouraged to continue their education, and that community job placement be better. (No refs.) - *M. Plessinger.*

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614 FRAMPTON, MERLE E.; KERNEY, ELLEN; & SCHATTNER, REGINA. *Forgotten Children: A program for the multihandicapped*. Boston, Massachusetts, Porter Sargent, 1969, 287 p. $6.95.

A comprehensive report is presented on the first 6 years of a successful project which was undertaken to meet the educational, vocational, medical, and social needs of multihandicapped children including children who were deaf, cerebral palsied, orthopedically handicapped, speech impaired, MR, or brain injured. All were also blind. Total enrollment was 30 children, with 12 to 17 participating each year, and all but 3 stayed for 2 years or more. At the time of admission, all the children were functioning below their CA. The program emphasized a special curriculum, group experiences, parent relations, and in addition, it maintained a therapeutic setting which was based on a structured and well-planned day. Continual developmental diagnoses and evaluations were performed by the staff on a team basis. Many of the children were found to be educable and some showed growth in all areas; however, severe physical involvement prevented a few from being trained in the activities of daily living. Some were trained to assume responsibility for their personal needs, but several could not be so trained. Some accomplished self-help skills, while others learned to make their needs known. In the evaluation of children with brain damage and motor-sensory losses, there is a need for clarification of terminology; one can describe total functioning and make an educational prognosis, but classification into categories of MR, emotionally disturbed, and brain damaged does not add to knowledge of their needs. None of the TMRs learned academically beyond the kindergarten level. The program offered physical therapy, play activities, personality development, speech therapy, language development, and a

highly specialized academic program emphasizing new techniques, skills, and methods. Parents and family members were an integral part of the total program. Research is needed for a greater understanding of the origins of the problems. (55-item bibliog.) *S. Half.*

CONTENTS: Preparation for the Project; The Children; Just One Child; Admission, Evaluation, and Placement; Residential Care; Physical Therapy; Play and the Therapeutic Setting; Personality Development; Speech Therapy; Language Development; The Academic Program; The Staff; The Parents; Four Girls; Today and Tomorrow.

615 SEGAL, IRV. A sense of belonging. *Challenge*, 4(4):1, 4, 1969.

The Ronald Bruce Nipon Foundation was established as a nonsectarian, nonprofit organization designed to meet the socialization needs of mildly retarded young adults who live at home in the greater Philadelphia area. Their handicaps are severe enough to prevent them from being totally integrated into the social lives of other young adults in the community, although they read, write, travel independently, and are employed full time or are involved in a rehabilitation program. Various individual socialization problems have been solved as a result of group participation provided by the foundation. For the last 3 years, the facilities of the Nationalities Service Center in Philadelphia have been made available for the group's get-togethers; however, with the increasing needs of immigrant groups, space for the foundation's programs have been increasingly difficult to obtain. It is hoped that a facility may be rented or bought to serve as an activities center and residence for these young adults. To this end the parent group of the foundation has been holding fund-raising activities. (No refs.) - *B. Parker.*

Ronald Bruce Nipon Foundation
Melrose Park, Pennsylvania

616 ANSAY, PAUL. Project 6--Wisconsin. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Illinois Mental Health Department, 1969, p. 194-203.

The purpose of the 5-year (1965-1970) Community Services Demonstration Project for the MR in Southwestern Wisconsin is to enable a rural area to develop services for the MR by providing consultation guidance and partial financial aid. The 6-county project area is sparsely populated, has no large industries, and has a per capita income well below the state average. At the onset of the project, a continuum of care for the MR was not available in any county, and there were only 4 classes/county for EMRs. The project program included the development of public education, the dissemination of professional and agency information, the establishment of a fixed point of referral, and the provision of local diagnostic services. The program also included home training specialists, a community placement worker, special education, day care programs, a sheltered workshop, and a recreation program. (No refs.) - *J. K. Wyatt.*

617 Ayr and District Branch. *Journal of the Scottish Society for Mentally Handicapped Children*, 3(4):1-4, 1969.

Sutherland House in Ayr (Scotland) serves area MRs through programs which provide field trips, parties, crafts, and parent liaison. Parents began organizing in 1957, and they provided information through films and speakers, as well as social and fund raising events. Donations of time, money, and a meeting hall made the first MR programs possible. The County Council began to help with expenses and finally purchased a large home to house the present activities of social clubs, family holiday apartments, and training activities. (No refs.) - *M. Plessinger*

618 KOCH, RICHARD; BAERWALD, ANN; McDONALD, JOAN; FISHLER, KAROL; & ROCK, HERBERT. The child development traveling clinic project in Southern California. *Mental Retardation/MR*, 7(2):46-52, 1969.

A successful Traveling Child Development Clinic Project led to the development of traveling clinics in several communities in Southern California; these clinics provide comprehensive diagnostic studies of MRs of preschool age. A multidisciplinary team approach is designed to make a thorough evaluation of the child's physical, neurological, intellectual, emotional, and social development. The traveling clinics stimulated the interest of professionals in MR and assisted urban and rural communities to develop their own diagnostic clinics. Retarded children are best served in their own community, and families welcome assistance in providing home care for their children. Recommendations made by the clinic are child-focused, but

family-centered; effective implementation is usually left to local community agencies. (No refs.) - *S. Half.*

Children's Hospital of Los Angeles
Los Angeles, California 90027

619 MILLER, BETTY S. Foster Grandparent Project: Narrative Report for Quarter Ending June 30, 1969. Pomona, California, Pacific State Hospital, 1969, 9 p. Mimeographed.

The Pacific State Hospital (California) successfully implemented a foster grandparent program that includes 56 persons employed on a regular basis and 8 substitutes. The foster grandparents are informed as to institution policies, procedures and programs, and these foster grandparents make a significant contribution to the daily lives of the residents. In return, they find the project a most challenging, rewarding, and gratifying experience. The project financially subsidizes the income of many senior citizens and has made their lives more meaningful. A few have become family caretakers for former residents. The foster grandparents are aware of the newly created behavior modification program which enables them to function more effectively as part of the treatment team. The children eagerly await the daily arrival of the foster grandparents, and many of the children show marked improvement in attention span, verbalization, communication, motor coordination, group play activities, and sharing. They are less hyperactive and have a greater awareness of their surroundings. By means of the one-to-one ratio, some residents are able to establish healthy and wholesome interpersonal relations. The foster grandparents help the ward staff by cooperatively exchanging pertinent information about the children's habits, actions, attitudes, and overall behavior. An appendix includes program augmentations, letters of commendations, and public appeals and support. (No refs.) *S. Half.*

620 ALLEN, RICHARD C. *Legal Rights of the Disabled and Disadvantaged.* (Social and Rehabilitation Service.) Washington, D. C., Superintendent of Documents, U.S. Government Printing Office, 1969, 102 p. $0.50.

Almost 6 million Americans are impaired in their ability to adapt to society; consequently, legal practices pertaining to residential institutions, involuntary sterilization, problems of retarded delinquents, guardianship and incompetency, and the retarded offender greatly affect their lives. There is no uniform legal definition for MR which is used in all States; instead there is a variety of legal, medical, and psychological practices and tests which are used. Mistaken diagnosis, lax admission procedures, inadequate facilities, and lack of retesting hold patients indefinitely within our institutions. Twenty-six states now have eugenic sterilization laws, and many other states allow "voluntary" sterilization before the patient can be discharged from a hospital. Legal shortcomings which pertain to guardianship include imprecise terminology, expensive proceedings, lack of clinical evaluation, and no established procedures. The MR should not be institutionalized for someone's convenience, and his legal rights should provide all the rights of citizenship, protection, and humane and appropriate care and treatment. Among reforms needed are the elimination of ambiguous legal terms, the requirement of judicial approval for institutionalization, the establishment of clinical services, the separation of institutionalization and incompetency in law, the requirement of periodic re-evaluation, the representation by counsel, consumer participation in policy formation, the establishment of an "ombudsman" system, and a recognition of the extent and character of the national effort required. (102 refs.) - *V. G. Votano.*

CONTENTS: Introduction--from Charity to Rights; Who Are the Disabled and Disadvantaged; Legal Rights of the Disabled and Disadvantaged; Conclusion.

621 What's with guardianship? *Deficience Mentale/Mental Retardation*, 19(2):20-21, 1969.

Because the question of guardianship or responsibility for MR persons is becoming more pressing, many countries are beginning to study and implement protective services for their MR citizens. In Canada, the Canadian Association for the Mentally Retarded is sponsoring a study of guardianship which includes a review of laws pertaining to the MR, legal considerations in general, and recommendations for legislative change. In the United States, the National Association for Retarded Children recommends that each state establish protective services with appropriate state agencies, and New Jersey and Minnesota have established certain state guardianship functions. The National Society for the Mentally Handicapped Children in

England has a trusteeship program which provides for the MR through a trust fund of 500 pounds donated by parents. The trust fund takes effect after the parents' death and guarantees a lifelong interest by the Society in the MR child's well-being. There are approximately 360 parents enrolled in this trusteeship program, and 9 MR persons are benefiting. (No refs.) - *M. Plessinger.*

622 HAMPE, RAYMOND A. The community looks at retardation from the perspective of total continuum of pastoral care. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Illinois Mental Health Department, 1969, p. 133-137.

Clergymen should have knowledge about MR as well as about available treatment agencies and professionals so that they can be effective in the areas of detection and referral and in ministering to the families of MRs. Religious education commensurate with the individual's level of comprehension should be available for MRs, and they should participate in all church activities. Clergy should promote community action so that services, facilities, and social conditions which will enable each individual to achieve his full potential are available. They should promote a social climate in which the MR are realistically accepted. Education about MR for clergymen could be provided in theological school curricula, special "clergy days" at schools and hospitals, institutes and workshops, and in courses in how to teach religion to the MR. (1 ref.) - *J. K. Wyatt.*

623 KIERAN, RICHARD A. *I Am*. Atlanta, Georgia, Our Lady's Association for Exceptional Children, 1969, 24 p. (No charge).

I Am was prepared to foster an evaluation of the church's attitude toward the MR, while at the same time serving as a practical guide to the Catholic Church's role in caring for the MR. While the book is primarily for use in the archdiocese of Atlanta (Georgia), it gives the norms for the administration of the sacraments and lists sources of aid for the MR of Georgia. General information regarding the incidence, signs, levels, and causal factors emphasizes the need for the Church to play a more active role in meeting the requirements of the MR. The special needs of the MR are only partially being met in the areas of recreation, education, employment, and Christian formation. A program of Christian formation emphasizes religious instruction, liturgy, and sacramental life. Instruction must be child-centered with an emphasis on a loving God rather than on doctrine. The MR should be allowed to participate in the liturgy of the Church. Sacraments extended to the MR should depend on the reasoning ability of the MR and the requirements of that particular sacrament. Local, state, Federal, and professional sources of aid for the MR are listed. Persons who would benefit from this book are parents, guardians, teachers, priests, and any others who are interested in MR. (26 refs.) - *G. M. Munn.*

CONTENTS: Mental Retardation; The Mentally Retarded; Special Needs of the Mentally Retarded; Services for the Mentally Retarded.

624 CARDER, J. L. Religion for the retarded in Canada. *Deficience Mentale/Mental Retardation*, 19(3):10-12, 1969.

The MR and their families should be afforded every opportunity for spiritual guidance; they are able to make significant and worthwhile contributions to their congregation. Acceptance and understanding by the ministry and congregation provides the MR with needed social contacts and the experience of belonging to a special group. Interfaith committees for the MR in Canada demonstrate (by means of workshops, seminars, lectures, field trips, Sunday school programs and in-service training programs) that the MR are valued in their church or synagogue. (No refs.) - *S. Half.*

No address

625 BREITENBECK, GERARD. Should the Retarded be Confirmed? Liguori, Missouri, Liguorian-Queen's Work Pamphlets, 1967, 23 p. (No charge.)

The MR should receive the benefits of the sacrament of Christian spiritual growth, Confirmation. The most severely retarded child can become a spiritual adult, and Confirmation assures the individual of a greater degree of glory in heaven and equips them to glorify God more completely. The MR frequently remind us of God's fundamental truths and encourage others to stand firm in their convictions and to advance in the love of Christ. Confirmation enables the MR to attain a higher place in heaven and a larger degree of happiness; they, thereafter, will have the Holy Spirit within their hearts. There is no excuse to deny the MR their right to be baptized and confirmed. Specific principles can be applied to the MR regarding Confirmation.

Instruction is not necessary for the SMR, and the amount that the TMR and the EMR receive will depend on their degree of impairment and level of functioning. Confirmation requires less instruction than first Holy Communion, and it is important for the MR to know that they, too, are receiving more of God's love. (No refs.) - *S. Half.*

626 BREITENBECK, GERARD R. *What Baptism does for the Retarded.* Liguori, Missouri, Liguorian Pamphlets, 1968, 23 p. (No charge.)

Baptism in the soul of the MR has marvelous effects and should not be denied. The MR are capable of receiving sacraments which will enable them to rise to the spiritual heights of lasting exaltation in God's kingdom, and their worth will be measured in the values of the Lord. When the MR are baptized, a great spiritual marvel transpires; the MR shares in the life of God, is a child of God, and is guaranteed eternal salvation. It is the duty of parents and priests to see that the MR are baptized, and it will not only be more meaningful to the child but to the parents and family as well. (No refs.) - *S. Half.*

627 DAVIDSON, V. TRENT. A new day for Sam and Abby. *Spectrum*, 45(6):4-6, 31-33, 1969.

The first of the religious education materials for TMRs was made available to local churches and to councils of churches and institutions in early fall 1969; materials for EMRs will be published in 1971 and 72. Subject matter for the TMR groups include life and its setting, revelation, sonship, the church, and vocation. The units are experience oriented to engage the use of the whole body. Materials for EMRs have an experiential, question-answering problem solving base. Units focus on ways people learn about God, what Jesus taught, and ways of appreciating the Bible as a book of special meaning. The fellowship of the church is greatly emphasized. Materials written for younger EMRs deal with self-worth, acceptance, forgiveness of self and others, assurance of God's love, and the need to find a purpose in life. A guide for teachers is included which contains descriptions of students who have learning problems, guidance for recognizing individual differences, suggestions for room arrangement, adaptations for use by parents or teachers in a 1:1 setting, and suggestions for evaluation. To minister to MRs and their families, churches should establish priorities, develop plans for leadership training, develop a rationale for service, provide experiences of direct involvement, provide material resources, and inform and involve ministers. (No refs.) - *E. Hattoon.*

No address

PROGRAMMATIC ASPECTS--RESIDENTIAL

628 WESTERN INTERSTATE COMMISSION FOR HIGHER EDUCATION. *A Comprehensive Description of Institutionalized Retardates in the Western United States.* Final report. Payne, Dan; Johnson, Ronald C.; & Abelson, Robert B. Boulder, Colorado, February, 1969, 155 p. (Contract Number PH 43-65-989)

Behavioral, social, and medical census data were collected on more than 20,000 MRs who resided in 22 state institutions for the MR in 13 western states. The average resident had been institutionalized for more than 12 years and had a mean age of 24.07 years. More than 1/3 of the population were PMR; about 2/3 were classified below the moderately MR; the mean IQ was 31.24 (s=20.04). The largest diagnostic groups were unknown prenatal influences (32% of the population) and psychogenic or functional causes (24%). About 85% of the residents were white, special diets were required by 33% and 67% required drug treatment. Residents evidenced extensive sensorimotor impairments in that 26% were unable to walk, 65% had impaired speech, 33% had impaired language comprehension, and 32% had chronic enuresis. A large number of residents required help in dressing (60%),

grooming (72%), brushing teeth (47%), and toileting (43%). Some residents were able to return home occasionally (40%); some did not receive mail (30%); some did not have visitors (30%). Of those involved in institutional programs, 25% were in school, 39% participated as ward helpers, and 13% were eligible for outside work placement. Behavioral ratings indicated that 39% were hyperactive, 40% were passive, 32% were aggressive, and less than 20% were evidenced destructive. Additional data include: the effects of age, sex, level of MR, and diagnosis on all other variables; the relationship between birth date and MR; and the predictive value of psychometric tests. (36 refs.) - *J. K. Wyatt.*

629 CLELAND, CHARLES C. Institutional objectives and general programs. *Training School Bulletin*, 66(1):32-39, 1969.

For effective programing, institutions should revolve around four major objectives: service, research, production, and training. Each should be of equal status, and an imbalance results from stressing one more than another. It is important to remember that institutions must meet the employees' needs as well as those of the residents. Rational management which takes account of this fact should provide for more efficient and effective service. (11 refs.) - *J. M. Gardner.*

University of Texas
Austin, Texas

630 STEPHEN, ELSPETH, ed. *Residential Care for the Mentally Retarded*. Oxford, England, Pergamon Press, 1970, 45 p. $2.00.

Patterns of care (patient-oriented or institutional-oriented) for the MR are determined by the kind of institution and the background of the staff not the size of the facility nor the staff-resident ratio. Patient-oriented care instills greater self-dependence in the patients and allows them greater freedom of choice not only in their activities but in their personal belongings as well. Rigid schedules are not maintained, and programs are devised according to individual need. Important in its implementation is a staff adequately trained in patient-oriented techniques. Although patient-oriented techniques seem optimistic, an experiment which used these techniques with PMRs (MA 12-15 mos) showed few positive effects and, in some cases, negative results when compared with the accomplishments of a control group receiving traditional care. Apparently, PMRs need more structure and rigidity; therefore, for them, institutionally oriented practices are preferred. Because hostels are not being built at a rate fast enough to accommodate MRs and because some MRs would not be suited to such a situation, it is necessary that present hospital conditions be improved. Overcrowding must be curbed, and staff personnel must have combined nursing and child-care skills. (113-item bibliog; 27 refs.) *K. H. Vogt.*

CONTENTS: Paper # 1 (Kushlick); Paper # 2 (Stephen); Paper # 3 (York-Moore).

631 KUSHLICK, ALBERT. Paper No. 1. In: Stephen, Elspeth, ed. *Residential Care for the Mentally Retarded*. Oxford, England, Pergamon Press, 1970, p. 1-17.

In Britain considerable evidence has shown that the major form of care required for MRs with IQs <50 is the substitute home since most of them, especially adults, do not have medical problems warranting continual care by a physician nor are they completely incapable of caring for themselves. The Regional Hospital Board is providing hostels designed for 25 patients and drawing their residents from the nearby community. The purpose is to provide child-oriented centers as opposed to rigid institutional-oriented care. Although both systems can operate in buildings of the same architectural design, child-oriented practices can be facilitated by an ample number of day-rooms where social interactions can readily occur. Also, easily accessible toilets and drinking fountains foster the residents' independence. Administrative aims must insure that institutional-oriented practices are avoided in the hostels and staff training incorporate resident-directed practices. Effective services are essential if the full potential of SMRs are to be realized. (18 refs.) - *K. H. Vogt.*

632 STEPHEN, ELSPETH; & ROBERTSON, JEAN. Paper No. 2. In: Stephen, Elspeth, ed. *Residential Care for the Mentally Retarded*. Oxford, England, Pergamon Press, 1970, p. 19-24.

A structured and secure environment with little freedom of choice is apparently more beneficial to children with very low IQs. Of the 20 institutionalized children in the experimental group, 6 had IQs <20 (MA 12-15 mos), 5 had IQs of about 20 (MA 18-24 mos), and 9 had IQs between 20 and 50. Based on observations by psychologists and nurses, a knowledge of progression of each child on Piaget's scale of sensori-motor intellectual

development, and an ad-hoc speech program, a "play program" was developed which included walking, speech, and play activities specifically designed for each group. Over a 3-year period comparisons were made with the enriched-environment group and a similar control group. Results were measured on a scale of verbal, nonverbal, and self-help abilities. Overall, the experimental group did some better than the control group; however, this change was greatest for the highest IQ group. The lowest IQ group showed no change, and in a few cases, negative results were obtained. The intermediate group had only some positive results in the self-help skills. (4 refs.) *K. H. Vogt.*

633 YORK-MOORE, M. E. Paper No. 3. In: Stephen, Elspeth, ed. *Residential Care for the Mentally Retarded*. Oxford, England, Pergamon Press, 1970, p. 25-34.

Individual and small group training methods are of utmost importance whether they be used in hostels or in hospitals, as both types of establishments should complement each other rather than operate as distinct organizations. Not all MRs with IQs <50 are able to function efficiently in a hostel environment; however, even within the structured hospital situation, smaller wards and more attendant personnel trained in patient-oriented techniques can have positive effects on the patients' development. Hostels should be designed to permit maximum individualization and self-dependence. It is essential that links between home and families and the hostel residents be encouraged. The problem of transfer from a MR hospital to a hostel is most acute, especially with adults, since hostels designed for the older patient usually have static populations with only occasional openings; hence, many people who are suited to this type of care are unable to receive it. Generally, there are a greater number of openings available in children hostels, for the residents tend to leave as they grow older. Because there are many patients qualifying for a single space, a multi-disciplinary selection board and a liberal trial period are essential. A child should not be excluded because of a specific problem. An urgent need exists for increasing the number of hostels while at the same time appropriate adaptation of hospital facilities must occur to make them more beneficial for the extremely handicapped. (5 refs.) - *K. H. Vogt.*

634 GUNZBURG, H. C. *Journal of Mental Subnormality*, 15(2):61-62, 1969. (Editorial)

Growing controversy over MR hospitals has led hospital nurses to feel criticized, frustrated, and uninterested in their work; in addition, they are underpaid and have poor working conditions. Since specialists and therapists have been trained to cope with the MR's special problems, the nurses are left with only custodial care to administer. The nurse's role must be redefined and a change accomplished in a purpose-oriented ward where the nurse can contribute to and improve the MR's competence and feel challenged in a rewarding vocation. (No refs.) - *M. Plessinger.*

635 MAGRATH, DONALD. Subnormal hospitals. *British Medical Journal*, 4(5676):173, 1969. (Letter)

A 1967 expose of the present condition of mental hospitals has alerted the public and government officials. These conditions are the result of many years of apathy which allowed the establishment of an organization in which business efficiency took precedence over the needs of the patients. (No refs.) *E. F. MacGregor.*

No address

636 WHITEHEAD, J. A. Are subnormality hospitals an anachronism? *Lancet*, 1(7623):740, 1969. (Letter)

Most hospitals for the subnormal need great changes. For more effective care and treatment, different types of patients should be placed in different kinds of situations. If the problem is primarily low-intelligence, the patient could be accommodated at home, hostels, or other special lodgings while attending special schools or workshops. If the MR also has a psychiatric problem, he should be treated in a psychiatric hospital. If the patient has a severe disability, he should be placed in a long-term care facility. If the MR S is being investigated or assessed, he could be assigned to a regional research center. (1 ref.) - *K. Lee.*

No address

637 BLAKE, J.; & SPENCER, D. A. Care of the mentally subnormal. *Lancet*, 2(7630): 1132-1133, 1969. (Letter)

The creation of hostels or other residential facilities outside the institution and more effective preparation of the institutionalized patients prior to discharge are mandatory if the transition from institutionalization to hostelization is to be effected. A hostel scheme should be complemented by a comprehensive and efficient institution. (1 ref.) - *A. Huffer.*

Stansfield View Hospital
Todmorden, Lancashire, England

638 GIBSON, JOHN. The mentally-retarded child in hospital: Suggestion for improving care and stimulation. *Clinical Pediatrics*, 8(5):256-257, 1969. (Commentary)

At St. Lawrence's Hospital for the MR (Surrey, England), selected patients are no longer segregated by age and sex, and this has been beneficial to all concerned. It is impossible for a nurse to provide care and attention to a whole ward of SMR children; however, older, mildly MR women can help the children immensely and gain some personal satisfaction in their work. "Family units" composed of men, women, and children may make the transition to the community more likely for patients who would not otherwise experience socialization. Life is more stimulating and meaningful when there is someone to care for or someone who cares. (No refs.)
E. L. Rowan.

St. Lawrence's Hospital
Caterham, Surrey, England

639 CAMPBELL, BARBARA. Meeting special needs through intervention by the nurse. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Illinois Mental Health Department, 1969, p. 125-129.

The goal of a nursing program in an institution for SMRs and PMRs is the achievement of each child's maximum potential in health and welfare. The program for PMRs emphasizes the maintenance of general health and careful exposure to social contacts with large numbers of adults and children. In addition to their responsibilities for comprehensive nursing care, the nurses teach language development, motor skills, and basic self-help skills. They fulfill the parent role insofar as possible, and they provide affection and simple play experiences. Behavior shaping techniques are used in the self-feeding program. Other factors which have aided in the training of MRs are proper diet, safe feeding habits, an understanding of abnormal reflex postures, sensory stimulation, and the use of social rewards and "time out" procedures. (1 ref.)
J. K. Wyatt.

640 SLOCUM, JEAN. An organized volunteer program in a residential facility for the retarded. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Illinois Mental Health Department, 1969, p. 158-160.

A volunteer program in a residential facility for the MR provides additional and personalized services to integrate the facility into the total community. The entire staff should participate in decisions about the best use of volunteers. One person should be responsible for coordinating and directing volunteer services. The emphasis of volunteer activities has shifted to doing things with rather than for MRs; highly individualized assignments in the areas of language development, religion training, self-care skills, and developmental activities have been successful. The primary goal of volunteer services is to use social interaction opportunities to provide the residents with feelings of self worth. Volunteers can be recruited from community organizations which have aims compatible with the goals set for MRs. In selecting volunteers, their dependability, patience, and attitudes toward the MR should be considered carefully. (No refs.)
J. K. Wyatt.

641 DAVIS, WILLIAM E. An approach to programming for severely and profoundly retarded adults. *Training School Bulletin*, 66(3):100-104, 1969.

The activity phase of the Hospital Improvement Project at the Dr. Joseph H. Ladd School is described. The program served 160 residents, (mean CA 36.5 yrs) 97% of whom were classified as severely or profoundly retarded. Particular attention is given to the attempted structure employed, records maintained, and evaluation measures applied in the program. (No refs.) - *Journal abstract.*

University of Maine
Orono, Maine 04473

642 CORNISH-BOWDEN, JOYCE. Working with children in residential settings. *Deficience Mentale/Mental Retardation*, 19(2): 14-16, 1969.

Since many retarded children are in institutions, it is important to consider the personalities of institutional personnel, particularly ward attendants. In-service training is an important area. Curriculum content should include infant and child development, activities of daily living, recreation, first aid, data collection, family living, and public and private social services. Tutors and supervisors should have a close working relationship with the students. (No refs.) *J. M. Gardner.*

George Brown College of Applied Arts
Toronto, Ontario, Canada

643 GRAEBNER, OLIVER F. Post Oak Village campus half-way cottages. *Training School Bulletin*, 66(3):127-132, 1969.

As the Hospital Improvement Project grant developed strategies to train and move teenage and older educable boys and girls to off-campus life, a group of 10 girls (CA 35-50 yrs) moved from a conventional dormitory for 40 women to a group of 1- and 2-room cottages on campus, formerly occupied by employees. Under the guidance of the supervisor and the social worker, the girls furnished their apartments, had telephones installed, now shop on their own, and work off-campus. For some, it will be a continuing (terminal) living; for others, it will be preparation for graduation to community life. The present 4 apartments will eventually be expanded to 22; the "normalization principle" dominates. (No refs.) *Journal abstract.*

Austin State School
Austin, Texas 78767

644 SAINTE-MARIE, PAUL. Clair Foyer--Residence pour enfants exceptionnels (Clair-Foyer--Residence for exceptional children). *Deficience Mentale/Mental Retardation*, 19(2): 32-36, 1969.

Clair Foyer, situated at Amos, Quebec, Canada, and under the auspices of the Minister of Family and Social Well-being, is a residential institution for 150 ambulatory and non-ambulatory children 3-6 years of age. The center consists of 5 living units, a building for the infirmary, personnel, and cafeteria, one for administration, and one for physical education and hydrotherapy. The modular-type construction units facilitate reassembly into different designs. To promote identification with the outdoors, one-half of the outside walls is glass. The living units contain individual areas for each child in addition to group areas and permit the child to have experiences in accordance with his degree of development. (No refs.) - *M. G. Conant.*

No address

645 TARJAN, GEORGE; EYMAN, RICHARD K.; & MILLER, CURTIS R. Natural history of mental retardation in a state hospital, revisited: Releases and deaths in two admission groups, ten years apart. *American Journal of Diseases of Children*, 117(6):609-620, 1969.

Two large admission cohorts a decade apart (1948-1952 and 1958-1962) at a state institution for the MR were compared in terms of death rate and release from the hospital. The 724 patients in the first group and the 1,611 in the second were arranged by sex, admission age, IQ, and diagnosis (functional, Down's syndrome, developmental cranial anomalies, and other somatic diagnoses). Over the decade, there was a trend toward admission of younger, more severely retarded patients. Mortality during the first 6 months of hospitalization fell from 61 deaths/1,000 half-years at risk in the first cohort to 12 in the second. Patients with Down's syndrome showed striking progress in release rate as did young mildly retarded patients regardless of their diagnosis. Most patients in the first cohort who were released went home while most of the second group went to foster families. While an increasing number of severely retarded individuals will require permanent institutionalization, there is much hope for community-based programs because of decreased mortality and the success of leave programs for the mildly retarded. (39 refs.) *E. L. Rowan.*

760 Westwood Plaza
Los Angeles, California, 90024

646 PINDER, STAN. Criteria for priority admission to state residential facilities for the mentally retarded. *Mental Retardation/MR*, 7(5):17-21, 1969.

This exploratory study discusses the problems created by waiting lists in the selection of applicants for admission to state residential institutions. Survey results revealed that 9 of 44 states responding to a questionnaire

utilized written admission criteria to determine relative urgency or priority of applicants for institutional admission. Examples of 2 such rating scales are presented, and an analysis of the rating scales in use at the time of this survey showed that the scales primarily related the need for admission to the following 3 major areas or situations: applicant, family, and community. (9 refs.) *Journal abstract*.

Texas Mental Health Department
Austin, Texas

647 SPENCER, D. A. Emergency admissions to a hospital for the mentally subnormal. *Journal of Mental Subnormality*, 15(2):96-99, 1969.

A survey of MR hospitals serving an area with a population of almost 500,000 showed that during 1968 there were 10 patients admitted on an emergency basis. A situation was considered an emergency when a family physician or mental welfare officer requested immediate admission of a patient. All Ss had CAs >15 years; 5 were males; 5 were females; 8 were EMRs; 2 were TMRs. Reasons for emergency admissions were disturbed behavior exhibited by 7, deteriorating condition in one, and lack of alternative accommodations for 2. Subsequent handling of the patients showed that 4 were returned home or to a hostel after short-term treatment, 2 were transferred to mental hospitals, one is awaiting alternative residential placement, 2 were transferred to a general hospital (intestinal obstruction and appendicitis), and one died of coronary thrombosis. The last 3 cases emphasize the danger that relatives and authorities may misinterpret an MR's behavior as a result of his mental condition rather than physical suffering. Problems associated with emergency admissions to MR hospitals include limited space due to low turn-over rates and limited medical staff during night, holiday, and weekend hours. Closer supervision of the MR in the community and anticipation of their problems could prevent some emergency admissions. (2 refs.) - *A. Huffer*.

Stansfield View Hospital
Todmorden, England

648 ILLINOIS, MENTAL RETARDATION SERVICES DIVISION. *Admissions to State Residential Facilities for the Mentally Retarded*. Springfield, Illinois, October, 1968, 8 p.

The procedures for admitting MRs to Illinois facilities for the MR are outlined as required by Mental Health Rule, Article I, Rule 1.02. Applications are processed as follows: voluntary applications or court orders are to be handled by the Division of MR Services; the application is to be acknowledged the day it is received; the Division may refer the applicant to a zone for more information, consultation with the family, or services to the family for interim care; the zone may refer the applicant back to the Division with recommendations (waiting list, emergency status, or alternative plans). If residential care is indicated, the facility will be notified and the applicant placed on a waiting list; applicants may be placed on inactive status upon request. Determination of emergencies and exceptional admissions are outlined. (No refs.) - *A. Huffer*

649 TOWNSEND, PETER. Meeting the needs of the older mongoloid individual through residential care. In: Wisconsin Association for Retarded Children. *Mongoloid Conference Proceedings*. (Conference of the Mongoloid Individual, His Family, and His Community, held April 10-11, 1968, Milwaukee, Wisconsin). Madison, Wisconsin, 1969, p. 35-38.

Institutionalization of the MR should be used only as a last resort, and then, the reasons must be meaningful and significant. Problems in medical treatment, nursing care, behavior-management, or training must be severe enough to warrant residential placement. Family needs and type of residential care are prime considerations in the placement of an older mongoloid individual. (No refs.) - *S. Half*.

650 RICHARDS, B. W. Age trends in mental deficiency institutions. *Journal of Mental Deficiency Research*, 13(3):171-183, 1969.

Age trends in St. Lawrence's Hospital (Caterham, England) were examined for the years 1949 through 1968. The mean age for men and women rose during that period, (7 yrs for males; 4 1/2 yrs for females). The percentage of elderly patients (CA >50 yrs) increased approximately 11% for both sexes, while the increase in the general population was approximately 3 to 5%. The percentage of patients diagnosed as having Down's syndrome

rose from 3.6% in 1941 to 9.1% in 1966 while their mean age rose from 21.3 to 28.4 years for the same years. (4 refs.)
J. M. Gardner.

St. Lawrence's Hospital
Caterham, Surrey, England

651 KURTZ, RICHARD A.; & WOLFENSBERGER, WOLF. Separation experiences of residents in an institution for the mentally retarded: 1910-1959. *American Journal of Mental Deficiency*, 74(3):389-396, 1969.

Separations over a 50-year period from a midwestern state institution for the MR were analyzed. Likelihood for live and sanctioned release into the community was highest for residents admitted in adolescence. Death, the most common type of separation, was most likely to occur during the first year of residence, and in the lowest and highest age groups. Of infants admitted below age 2, 14% died within 3 months, and 45% within 12 months. While reporting and analysis of death is a relatively neglected area in studies of institutional population movement, it could provide suggestions for institutional program needs. (37 refs.)
Journal abstract.

University of Notre Dame
Notre Dame, Indiana 46556

652 BERTRAND, PATRICIA TATE. Social services in residential care facilities for the moderately and severely retarded. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Illinois Mental Health Department, 1969, p. 151-157.

Social services attempt to improve the social functioning of institutionalized MRs and prevent additional social dysfunctioning. The special needs of the moderately and severely MR are related to difficulties in self-care and management, personal behavior, communication, coordination, awareness of others, and respect for their rights, suggestibility, and poor judgment. These needs require special services in the areas of habit formation and social training. Social work provides direct and indirect services based on an understanding of the environment and individual needs and relationships. Preadmission services evaluate the appropriateness of residential placement and prepare the child and family for separation. At admission, social workers represent the facility and communicate what is expected of the parents as well as what they may expect in terms of care for their child. Resident services include direct group and individual services for MRs and their families, staff consultation, in-service training, personnel supervision, and program organization. When an MR is to be discharged, social services provide appropriate discharge planning and follow-up. (5 refs.) - *J. K. Wyatt.*

653 WHALEN, CAROL K.; & HENKER, BARBARA A. Creating therapeutic pyramids using mentally retarded patients. *American Journal of Mental Deficiency*, 74(3):331-337, 1969.

The goal was to develop and evaluate procedures for teaching adolescent retardates (tutors) to use behavior modification techniques with younger patients (trainees). Modeling and reinforcement procedures were used to train the tutors who, in turn, acted as behavior therapists for severely retarded trainees. Procedures are described for creating such a "therapeutic pyramid" in an institutional setting. Brief case histories of 3 tutor-trainee dyads are presented, and plans for extension and further evaluation of the pyramid approach are previewed. (21 refs.)
Journal abstract.

Fairview State Hospital
Costa Mesa, California 92626

654 HENKER, BARBARA A.; & WHALEN, CAROL K. Pyramid therapy in a hospital for the retarded. *Proceedings of the 77th Annual Convention of the American Psychological Association*, Volume 4, Part 2, 1969, p. 779-780.

Five institutionalized female MRs (mean IQ 57; mean CA 19 yrs 2 mos) were trained by professional behavior therapists to teach simple social behavior to 10 institutionalized MRs (8 males, 2 females; mean IQ 30; mean CA 7 yrs 11 mos). The tutors had understandable speech and enough motor skills to feed and control active children and were able to follow directions. The trainees spanned the lower range of adaptive abilities and had extremely deficient response repertoires and severe physical disabilities. During the first phase of training, 1/2 the trainees participated in 60 sessions of a modeling reinforcement procedure during which the tutors taught them to imitate basic sounds and gestures and follow basic directions (Group T-P). The remaining Ss were exposed to 60 unstructured play experiences during which the tutors gave them noncontingent attention, praise, and food (Group P-T). During the

second phase of training, the training conditions for each group were reversed. The Social Behavior Test was used to measure training improvement. A post-test after Phase I showed that both groups had increased in responsivity; however, the increase of the T-P group was significantly (.05) greater than that of the P-T group. The T-P group also made significant gains in number of correct and incorrect responses. On the Phase II post-test, the responsivity gains of the P-T group were significantly (.01) greater than those of the T-P group, and the P-T group made significant gains in the response categories. During Phase I, Ss in the P-T group gained in general appropriate responsiveness and task-oriented responses, while Ss in the T-P group acquired nonspecific, task-oriented behaviors, an accurate imitative repertoire, and precision in general appropriate responsiveness. The therapeutic benefit for the tutors included gains in responsibility, self-esteem, and caretaking skills. (4 refs.)
J. K. Wyatt

655 ROOS, PHILIP; & OLIVER, MARGRET. Evaluation of operant conditioning with institutionalized retarded children. *American Journal of Mental Deficiency*, 74(3):325-330, 1969.

The effectiveness of operant conditioning procedures implemented by attendants was evaluated by comparing the progress of 3 groups of severely and profoundly retarded institutionalized young children. In addition to the experimental and control groups, a placebo group, which received classroom-type training, was included. The results indicated significantly greater improvement in the group trained by operant conditioning. (19 refs.) - *Journal abstract.*

National Association for Retarded Children
Arlington, Texas 76010

656 GORHAM, WILLIAM. Speech, language, and hearing program: Purpose and techniques. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Illinois Mental Health Department, 1969, p. 87-91.

The major types of speech and language disorders in an institutionalized MR population are articulation, voice, rhythm, rate, and language. Hearing disorders may be conductive, sensori-neural, or mixed. Types of therapy which will benefit SMRs and PMRs include language development and stimulation, hearing and auditory training, and medical treatment. Language stimulation and instruction in the proper use of a hearing aid can be provided in an institution or school. Other problems should be referred to the appropriate agency. A nonclinician can provide language stimulation for young MR children by emphasizing the development of those eating habits necessary to speech (sucking, chewing, and swallowing). Language stimulation for older MRs should begin with the use of simple words which emphasize the development of key sounds. Simple action verbs, adjectives, adverbs, and the other parts of speech should be gradually introduced. As words are learned, they should be reinforced. The instructor should talk in clear sentences to aid the development of receptive abilities. Hearing aids should be properly placed and tuned, and MRs should be encouraged to wear them. (1 ref.)
J. K. Wyatt.

657 BENNETT, FAY W. Ward language development program for institutionalized retardates. *Training School Bulletin*, 66(1): 23-31, 1969.

A 3-month, language training program was established for 100 institutionalized MR children from 4 different wards. Language development technicians provided feedback and reinforcement to ward attendants for behaviors which enhanced language skills. The Parsons Language Sample (PLS) and the Verbal Language Development Scale (VLDS) were given pre- and post-treatment. Significant ($t < .05$) improvement was noted on the VLDS in 3 of the 4 wards. Improvement on the PLS was noted on only 1 ward. No consistent relation between scores on the PLS subscales and IQ, CA, etiology, and years of institutionalization was found. (7 refs.) - *J. M. Gardner.*

Gracewood State School and Hospital
Gracewood, Georgia 30812

658 CALIFORNIA. MENTAL HYGIENE DEPARTMENT. *Directory of Private Institutions Licensed by the Department of Mental Hygiene*. Sacramento, California, 1970, 83 p. (Price unknown)

A directory of 960 private institutions (proprietary and nonprofit) which are licensed by the Mental Hygiene Department of California

is presented. The facilities include those for persons with mental illness, MR, alcoholism, drug addiction, and emotional disturbances. The section of the directory concerned with MR has institutions listed alphabetically under each county in California, and the listing includes the address, the type of patient admitted, the rates charged, the Mental Health license number, the license expiration date, the class of facility (whether it is a family home, nursery, resident school, resident facility, or a day care center), and the capacity. (No refs.)
M. D. Nutt

PROGRAMMATIC ASPECTS--RECREATIONAL

659 NEAL, LARRY L. Recreation for the mentally retarded: Identify, train, and serve. *Therapeutic Recreation Journal*, 2(1): 10-19, 37-38, 40, 1968.

It is the duty of the recreation profession to: identify MR individuals in terms of needs, strengths, and limitations; adapt facilities and programs for these entities; and serve with the conviction that recreative activity is necessary for the MR to reach their full potential. Neither intelligence testing nor social adequacy are sufficient to identify the retardate population; a combination of the 2 is necessary. The 5 major definitions of retardation agree only that its onset occurs prior to age 18; they differ as to whether the cause is organic and whether mental retardation is curable. Present systems of classification do, however, enable the recreationist to recognize certain characteristics of the retarded. Title V of Public Law 90-170 provides monies to colleges and universities for the professional preparation of personnel in recreation for the handicapped. Recreation has great physical, social, and educational value for the retarded. To fully develop the personalities of the MR, intensive recreation programs should begin early and be tailored for the individual. (11 refs.) - *J. Y. Bruno*.

University of Oregon
Eugene, Oregon 97403

660 DOWNEY, MARY. Recreation. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Illinois Mental Health Department, 1969, p. 105-107.

Recreational activities can be creative, stimulating experiences for MRs and can enhance the development of motor and muscular coordination, physical fitness, and language. Activities can include self-help skill classes, social clubs, games, physical fitness groups, and singing. General areas of recreation include audio-visual aids, drama, hobbies, special interests, social recreation, nature, music, and special events. Recreation leaders should be responsible for the selection of an activity and should learn about it before attempting to teach it. The activity should be demonstrated, and then everyone should be given an opportunity to participate. The leader should make group rather than individual corrections and should be kind and firm. Although a variety of games should be used, too many new activities should not be introduced at the same session. (No refs.)
J. K. Wyatt

661 O'MORROW, GERALD S. The status of recreation for handicapped children in institutions. *Therapeutic Recreation Journal*, 3(2):13-19, 1969.

Recreation is not fully utilized in most institutions for the handicapped because of lack of funds and staff or because administrators question its importance. Recreation activities help to increase the growth and development of the child, increase self-awareness, and stimulate interest in other activities. Cooperation among professionals in a variety of disciplines is necessary to achieve all these goals. More research in therapeutic recreation is needed to provide professionals with information and a variety of interpretations against which they can check their own observations. More institutions must establish programs for recreation

for the handicapped if these children are to reach their full potential. (No refs.) *J. Y. Bruno.*

Indiana State University
Terre Haute, Indiana 47801

662 STERNBERG, ROBERT; & SMITH, HAZEL. Activity programs for the institutionalized adult trainable retardate. *Therapeutic Recreation Journal*, 1(1):18-19, 1967.

Regardless of his mental age, the institutionalized adult TMR must be involved in programs which will prepare him for the adult environment. The most effective method of grouping retardates is on the basis of the individual's level of adaptive behavior rather than IQ. Physical limitations should also be considered in group placement. Activities chosen must be adapted to meet the needs of each group. Many activities designated for TMRs are really geared to the abilities of the EMR. Due to lack of research in the area of institutionalized adult TMRs, the therapist must modify both the techniques and goals of every activity. Until research has uncovered newer methods, the success or failure of the activity program depends upon the creativity and flexibility of the therapist. (No refs.) - *J. Y. Bruno.*

Henryton State Hospital
Henryton, Maryland 21080

663 ORTEGA, LOURDES G. Recreation: In the treatment of the mentally retarded psychotic patient. *Therapeutic Recreation Journal*, 2(1):24-29, 1968.

A pilot investigation was undertaken to determine if methods of nonverbal communication with 4 SMR female, psychotic patients (CA 18-33 yrs; Vineland MA 1-5 yrs) could be developed to improve their competence in daily living. All had to be bathed and dressed by nursing assistants. Dressing was target behavior for 2, while grooming, dressing, and bathing were target behaviors for the others. Each patient had one session a day, followed by a reward for approximation of desired behavior. In 6 months, the necessary time for the sessions was greatly reduced, and retesting on the Vineland Scale showed an average increase of 23 months mental age. Because of the success of the pilot, 30 MR psychotic patients were chosen for a similar program. Nursing assistants used the same rewarding procedures to teach them personal hygiene, table manners, ward chores, and arts and crafts. Later, a simulated work experience program was organized, and the patients learned to function in a job and handle their earnings. (No refs.) - *J. Y. Bruno.*

Saint Elizabeth's Hospital
Washington, D. C.

664 SISTEK, HARRIET R. An experiment in recreation with profoundly retarded. *Challenge*, 4(4):3, 9, 1969.

PMRs respond to recreation which is structured and supervised and designed to stimulate them. Twelve institutionalized boys (CAs 10 to 18 yrs; MAs 7 mos to 2 yrs; IQs 7 to 28) were enrolled in a special recreation class. They were the most unresponsive in their ward and were unable to dress, were untidy, had short attention spans, and were unaware of surroundings. Individual and group activities (from pairs to larger groups) were scheduled. At first, the boys rebelled at having to share the teacher. A routine was established: 10 minutes of marching and rhythm bells; 5 minutes of a circle ball game; 15 minutes with educational toys; 20 minutes free play; putting away toys; and a song. After months, 9 boys could enter the classroom and find their own places; 3 assisted the teacher in distributing the equipment, and 4 could lead a circle ball game. (No refs.) - *M. Plessinger.*

Newark State School
Newark, New York 14513

665 GROFF, LINDA BRUNDAGE. Recreational arts and crafts for the mentally retarded. *Therapeutic Recreation Journal*, 111(3):29-32, 1969.

Arts and crafts should be a vital part of recreational programing because they afford the MR the opportunity for self-expression and creativity, encourage experimentation, develop good work habits, provide an emotional outlet for frustrations, initiate socialization experiences, help to improve motor coordination, enhance self-esteem, and fulfill a basic need for a feeling of achievement and success. Activities and projects should be purposeful, useful, and realistic. A well-planned, organized, and structured arts and crafts program can fruitfully foster growth and development in MR children. (12 refs.) *S. Half.*

Recreation and Park Department
Arlington, Virginia

666 NIKOLAEV, S. F. K voprosu o korrektsii nedostatkov umstvenno otstalykh detei vo vneklassnoi rabote (Correction of deficiencies of MR children during extracurricular activity). *Spetsial'naya Shkola*, 5(131):111-115, 1968.

Extracurricular activities for MR students in a remedial school in Odessa (USSR) include handiwork, choreography, woodwind orchestra, photography, nature study, and evening socials with notable people. A trained teacher is always present to help coordinate the activities. (No refs.) - *R. K. Butler.*

Remedial Boarding School No. 88
Odessa, Union of Soviet Socialist Republics

667 KINGSLEY, RONALD F.; & SPIES, CARL J. The relationship of interests to social acceptance of educable mentally retarded boys in a school camping program. *Training School Bulletin*, 66(3):93-99, 1969.

This study was conducted to investigate the relationship of current and desired interests and activities of EMR boys to social status with regard to selection for friendship, leadership, and athletics. The setting for the study was a residential public school camp program for EMR boys. The findings tend to indicate that neither current nor desired activity categories investigated were a significant factor for peer status. (26 refs.) *Journal abstract.*

Kent State University
Kent, Ohio 44240

668 ZECHIEL, LARRY, JR. Experiences in camping for retarded are shared. *ICRH (Information Center, Recreation for the Handicapped) Newsletter*, 3(19):1, 3, 1969.

A summer camp experience for TMR children began as a one-week program for retarded employees of a work training center and was expanded into 2 weeks and opened for all retardates from Orange County. The camping experience was based around the theme of "Great American Indians" with campers and staff participating. (No refs.)
J. M. Gardner

669 FREEBURG, WILLIAM. Camping for the handicapped: A selected bibliography. *Therapeutic Recreation Journal*, 3(2):38-41, 1969.

This bibliography on camping, selected from literature published from 1949-1964, includes items relating to the blind, deaf, diabetic, emotionally disturbed, MR, and senior citizen. (76 refs.) - *A. Huffer.*

Southern Illinois University
Carbondale, Illinois 62903

670 PANZER, CHARLES. Swimming program for retarded is outlined. *ICRH (Information Center, Recreation for the Handicapped) Newsletter*, 3(19):3, 1969.

A swimming education program for 40 TMR children in a neighborhood high school provided experiences in learning to swim, water safety, and interaction with normal high schoolers and was considered a worthwhile recreational activity. (No refs.) - *J. M. Gardner.*

North Suburban Special Education District
Glenview, Illinois 60025

671 THELANDER, H. E. Recreation as therapy for the retarded and handicapped: Utilizing recreation productively. *Clinical Pediatrics*, 8(7):374-375, 1969.

The San Francisco Recreation Center has demonstrated that the MR can effectively utilize and therapeutically derive maximum value and benefit from a recreational program. MR and physically handicapped children need to live and be treated as normals and should be provided every opportunity and community resource which will enhance and contribute to their overall growth, development, and emotional and social adjustment. A small staff augmented by volunteers can easily implement a recreation program for the handicapped. (No refs.) - *S. Half.*

40 Seafirth Place
Tiburon, California 94920

672 WOOD, TOM. Abilities, not handicaps, stressed by Peoria ARC. *ICRH (Information Center, Recreation for the Handicapped) Newsletter*, 3(21):1, 3, 1969.

The Peoria (Illinois) Association for Retarded Children emphasizes the development of the MRs' abilities. The program includes day

care, day camp, residential camp, workshop, and recreational activities (swimming, bowling, skating, and trips to zoos and museums). (No refs.) - *E. F. MacGregor.*

Southern Illinois University
Carbondale, Illinois 62901

673 WOOD, TOM. Detroit hasn't forgotten adult retardates' needs. *ICRH (Information Center, Recreation for the Handicapped) Newsletter*, 3(21):1, 3, 1969.

To fill the need for a program for older teen and adult MRs, the Detroit Parks and Recreation Department has created a year-round program, established 3 daily recreation centers, a residential camping area, day camps, and built a new day camping and recreation center. More than 125 MRs participate in these programs. Although these are largely financed by the city, the assistance of mothers of MRs who donate a minimum of one day a week, the contributions of several volunteer organizations, and individual donations (such as free skating and bowling) have been invaluable. Besides many types of indoor and outdoor recreation, field trips, a rhythm band, and a yearly talent show create many learning opportunities. (No refs.) - *E. F. MacGregor.*

Southern Illinois University
Carbondale, Illinois 62901

674 ROSS, DOROTHEA. *Pacemaker Games Program*. Palo Alto, California, Fearon, 1969. $36.00.

The Pacemaker Games Program helps EMRs acquire number knowledge, learn common shapes and colors, and master general game skills. The program includes a 72-page teacher's manual, 5 simple game boards, 5 different decks of special playing cards, 2 pairs of dice, a set of dominoes, a whistle, and shape and color counters. The teacher's manual has sections on the program's philosophy, directions for conducting the games, and instructions for 65 games. Specifically, EMR children can be expected to learn general game skills, to count to 10 or higher, to learn rational counting, to use ordinal numbers to 5, to pair sets of objects, to recognize common shapes and colors, to identify coins, and to use quantitative vocabulary. (No refs.) *M. D. Nutt*

675 WOOD, TOM. The Farm Club has acres of opportunity. *ICRH (Information Center, Recreation for the Handicapped) Newsletter*, 3(19):1, 4, 1969.

A 7 1/2-acre farm, jointly owned by about 40 families of physically and mentally handicapped youths, provides recreational, physical, social and academic experiences. In addition to a school for the retarded and a summer day camp, weekend activities take place throughout the year. Parents and children are free to use the facilities at any time. (No refs.) - *J. M. Gardner.*

Southern Illinois University
Carbondale, Illinois 62901

FAMILY ASPECTS

676 STABLER, ELIZABETH M. *Primer for Parents of a Mentally Retarded Child*. Toronto, Canada, Canadian Association for the Mentally Retarded, 1969, 8 p. (Price unknown)

Local units of the National Association for Retarded Children (NARC) are available to help all parents faced with the problem of having a retarded child. By means of their professional staff, they can help parents to help their child become emotionally satisfied and have as meaningful a life as his capabilities will allow. In addition, NARC has information about training, educational, and vocational rehabilitation programs. It is imperative that parents be provided with constructive professional counseling services so that they can receive honest answers to their

questions. Throughout the country, there are numerous parent groups which contribute significantly to the overall well-being of families with a MR child. Parents should contact the national offices of NARC if they are unable to locate a unit of this Association in their community. They will be promptly advised of one near their place of residence. (No refs.) - *S. Half.*

677 LOVE, HAROLD D. Parental attitudes toward mentally retarded children. In: Love, Harold D., ed. *Teaching the Educable Mentally Retarded*. Berkeley, California, McCutchan, 1968, Chapter 7, p. 273-289.

A review of literature on parental attitudes toward MR reveals that there are no set reactions toward MR and that parent reactions are influenced by the child, the parent, the degree of MR, the kind of MR, the community, and the family. Overcompensation and denial represent parental attitude extremes; the principle types of attitudes are mature acknowledgement, disguising reality, and complete denial. Most parents of MRs undergo a period of anxiety and emotional upset when they learn about the child's handicap. They want and need the acceptance and assurance of other parents in the community. Parents of MR children frequently reject them, and this has a pronounced effect on the child's adjustment. There is a need for parent education concerning MR and for community education on its responsibilities concerning MR. The father's acceptance or rejection of an MR child frequently determines the quantity of acceptance or rejection provided in the home. Families may react to MR by adopting a tragic attitude or by isolating themselves from the community. Parents who eventually accept MR pass through the stages of: awareness that a serious problem exists; recognition of the MR; search for the cause; search for a solution; and acceptance of the problem. The most frequent emotions expressed by parents of MRs are disappointment, anger, and guilt. Many parents do not know the cause of their child's MR and feel greatly concerned about the future. (22-item bibliog.)
J. K. Wyatt

678 JACKSON, M. S. Reactions of some Australian mothers to the birth of their mentally handicapped child. *Slow Learning Child*, 16(1):37-43, 1969.

A survey of 36 mothers who had MR children (IQs 40 to 50) indicated a need for professional counseling of such parents. Mothers were asked about their discovery that their child was MR, confirmation of such discoveries, attitudes toward themselves, and attitudes toward their child. Nine mothers were told of the MR at birth, 4 noted retarded progress; 1/4 of the mothers reported that peculiar features were the tell-tale sign, 4 were alerted by prolonged illness of their child, and one mother said she knew by intuition. Over 1/2 consulted a specialist, and 11 consulted more than one specialist. Seventeen of the mothers felt pity for themselves, 6 felt some guilt, and 22% felt cheated. Six of the mothers reported no feelings of pity for their child, while 9 felt overwhelmed with pity for their children. One-half of the mothers felt they were not hindered in holidays or outings (this appeared to be related to a higher socioeconomic level). Most mothers felt that they were not overprotective of their MR child, but most were more lenient towards him. Three quarters of the mothers did not wish to institutionalize their child, while one definitely wanted institutionalization. Counseling is indicated in the areas of aiding parents to handle their emotional reactions, providing information as to the problems of others with similar or greater disabilities, providing marriage counseling, advising appropriate methods used to tell siblings, and providing information on community facilities for transportation or boarding of MR children. (2 refs.) - *M. Drosseman.*

Monash University
Victoria, Australia

679 JAMES, VERNON L., JR.; & WHEELER, WARREN E. The care-by-parent unit. *Pediatrics*, 43(4):488-494, 1969.

A 2-year experience with hospitalization of children in the Care-By-Parent Unit showed that mothers can usually take complete care of their ill children--thus releasing registered nurses for work elsewhere. This procedure not only decreases possible trauma for the child, but also improves the learning process for the mother. More than one child has been admitted with a parent in cases of MR, multiple congenital anomalies, diabetes, and PKU. The costs are lower under this plan, and the patients are thought to receive superior care. (No refs.) - *M. G. Conant.*

University of Kentucky Medical Center
Lexington, Kentucky 40506

680 LARSEN, LAWRENCE A.; & BRICKER, WILLIAM A. *A Manual for Parents and Teachers of Severely and Moderately Retarded Children*. IMRID (Institute on Mental Retardation and Intellectual Development) Papers and Reports, 5(22):1-138, 1968.

Teaching specific activities and building reinforcement control are the 2 main aspects of teaching the MR; this paper is an elementary guide of techniques and procedures for parents and teachers of MRs. Methods and principles of behavior modification and detailed descriptions of how they can be used to obtain specific responses, simple and complex, are provided. In order to change the behavior of an MR, it is important that their environment be modified through appropriate use of positive and negative reinforcement. Positive reinforcement increases the quantity of appropriate behavior, while withholding reward or applying punishment for improper behavior decreases that behavior. To insure that the desired changes in behavior are occurring, one must use the pretest-education-posttest method to accurately plot the MR's progress. A discussion of the techniques of shaping behavior is also included, whereby difficult tasks are taught by reinforcing successive behaviors that become more identical to the actual behavior desired. (No refs.)
K. H. Vogt.

CONTENTS: Part I: Educating the Moderately and Severely Retarded; Part II: Activities for the Moderately and Severely Retarded.

681 GALLOWAY, CHARLES; & GALLOWAY, KAY C. *Parent Groups with a Focus on Precise Behavior Management*. IMRID (Institute on Mental Retardation and Intellectual Development) Papers and Reports, 7(1):1-38, 1970.

The education of MR children can be continued in the home when parents learn to deal directly with behavior. A model was devised whereby parents carefully pinpointed the frequency of a behavior response, introduced an intervening variable, and recorded the behavior response. An increase in desired behavior or a decrease in noxious behavior was attributed to the variable. Parents were instructed in the model's techniques by researchers from a day-care center which the children attended. Parents learned to focus their attention on a specific, measurable behavior response and recorded the occurrence of the response on graph paper. The greater the time spent on daily recording, the more valid the results. The visual presentation of the behavior provided a permanent record of the initial level of the problem as well as a means to compare later changes in the response. A base level of response was achieved after a minimum of 5 days of data recording. This was followed by some plan to modify the behavior; that is, each time the behavior occurred it was immediately followed by some parental action. Maintaining the response record provided feedback as to the success of the parent's plan. Failure led to revision of the plan. Many of the parents were successful in their implementation procedures. (3 refs.) - *K. H. Vogt.*

682 HIRSCH, IRWIN; & WALDER, LEOPOLD. Training mothers in groups as reinforcement therapists for their own children. *Proceedings of the 77th Annual Convention of the American Psychological Association*, Volume 4, Part 2, 1969, p. 561-562.

Thirty mothers with severely disturbed children who had been diagnosed as autistic, MR, brain-damaged, schizophrenic, or with severe personality disturbance were trained to use reinforcement principles to modify the behaviors of their children. The mothers attended 9 group meetings which consisted of highly organized lectures on human behavior modification, a discussion about the individual child of each S, and advice on how to deal with that child's major behavior problems. Each mother was tested 3 times to assess changes in level of depression and anxiety, improvement in rating the desirability of the child's behavior, and knowledge and application of reinforcement principles. Mothers did obtain the knowledge and verbal facility needed to apply effective behavior modification techniques in their homes. Records of deviant child behavior significantly improved, excessive deviant behavior declined, and deficient deviant behavior increased. Mothers reported that they had strongly benefited from the program and that it had resulted in changes in their own and their children's behavior. Although there were decreases in the Anxiety and Depression scales of the Minnesota Multiphasic Personality Inventory, they were not significant. Anxiety and Depression scores on the Lorr-Daston Mood Scale significantly decreased during treatment, but increased during follow-up. (10 refs.)
J. K. Wyatt.

683 RYBAK, W. S.; & TODD, BOONE. Together we learn. *Clinical Pediatrics*, 7(12): 705-706, 1968.

In order to provide support for children and parents, Dixon State School has instituted a project to have families participate in staff conferences; this helps the parents develop insight and knowledge as well as gives them a place to discuss their fears and anxieties. This interdisciplinary approach is helpful in resolving parent conflicts toward their child, and in addition, it aids in the implementation of hospital plans. (No refs.)
V. G. Votano.

Dixon State School
Dixon, Illinois 61021

684 REINHART, JOHN B.; & ELMER, ELIZABETH. Love of children--A myth? *Clinical Pediatrics*, 7(12):703-705, 1968. (Commentary)

Physicians were hampered in their diagnosis of infant and child abuse by their refusal to admit that not all adults (even though they may be mothers or fathers) love children. Children are, at best, a mixed blessing--they limit adult activity, they need care and loving attention, they are not always easy to deal with, they are of no economic value, and they need protection from the environment for many years. Thus, we have many discrepancies between services for children in the community and those for adults; when community programing is done, services for children tend to be slighted. In addition, in pediatric hospitals, about 78 cases/year of child abuse or failure-to-thrive syndromes are newly admitted; this does not speak well for "mother love". In England, 100 mothers who were placed on probation after instances of neglect of their children were admitted to a residential training home for a rehabilitation program. Of these, 14 were outstandingly successful, 25 were progressing, 36 were improved but still in need of help, and 25 were failures. In planning services for children, not only must attention be paid to the child, but also to the parents and to their interactions. If parents are not able to give proper care, then other planning or placement of the child out of the home must be considered. Pediatricians need to be extremely realistic in their thinking and must recognize the ambivalence toward children which is latent in all adults. (8 refs.)
M. Drosman.

Children's Hospital of Pittsburgh
Pittsburgh, Pennsylvania 15213

685 CASSE, ROBERT M., JR. The professional's responsibility in aiding parental adjustment. *Mental Retardation/MR*, 6(1):49-51, 1968.

Parents of an MR child may not have learned the response patterns to deal with their child, and they must rely on their defense mechanisms to incorporate this uncomfortable experience. Professionals must provide help through early detection, encouragement of parent groups, and implementation of vocational training for the MR. As soon as MR is detected in a child, information relative to and depicting retardation must be given to the parent. The response of the professionals at the time of birth is most important in helping the mother to develop a healthy understanding of the expected growth and development of her child. Parents must be aware that the assessment of a retarded child, unlike a normal child, cannot be based upon hopes and expectations and that developmental steps do not necessarily occur at the same time as in the normal child. Eventually, through reinforcement, the parents will incorporate an intellectual and response repertoire which will help them to develop realistic concepts of their MR child and to help their child to adjust to society. (No refs.)
V. G. Votano.

Baton Rouge Association for Retarded Children
Baton, Rouge, Louisiana

686 JOHNSON, STEPHEN M.; & BROWN, RICHARD A. Producing behavior change in parents of disturbed children. *Journal of Child Psychology and Psychiatry*, 10(2):107-121, 1969.

Parents can learn behavior responses to a child's behavior through programs which teach controlled interaction and by parent observation of child-therapist interaction with didactic instruction. A case study involved a 2-year, 9-month-old adopted child (IQ approximately 60-70) with uncontrollable behavior, lack of speech, and very little response to adults. A play situation was created to elicit desired behavior; initially, the mother reinforced bad behavior. After programed instruction, group discussions, and participation in controlled play with the therapist signalling when to reward the girl, the mother began to make progress with the child. In sessions 3-13, the mother's behavior was reinforced when the therapist signaled correctly rewarded behavior. In a modeling period before each session, the mother watched a therapist play and reward the child. In another case study, parents reacted to undesired behavior of an immature 6-year-old boy

who was too unmanageable for school. Parent education was ineffective until their response to his behavior was analyzed and a situation was created for interaction. Modeling was used as a therapist rewarded achievement and ignored erratic behavior. The mother learned quickly and the subsequent sessions reinforced her behavior. Modeling seems effective in making parent behavior changes, and parent reinforcement by the therapist is crucial until the child reinforces the parent by his improved behavior. (20 refs.)
M. Plessinger.

University of Oregon
Eugene, Oregon 97403

687 GERBER, STUART A.; & SINGER, DOROTHY. Dynamic group counseling with mothers of students in special classes. *Corrective Psychiatry and Journal of Special Therapy*, 15(2):25-33, 1969.

The involvement of the mothers of children in special education classes in group counseling discussions not only facilitates the child's adjustment to remedial classes, but also aids the mothers in gaining insight into their own and their family's behavioral dynamics. Such group experience can go beyond information-dispensing and issue-oriented discussions and allow parents to explore their own feelings of guilt, shame, and inadequacy. Six mothers in 12 group sessions progressed through several levels of concern. Blame of the child and the school shifted to self-blame and guilt. Meaningful discussions about family atmosphere revealed that most mothers avoided autonomy and suppressed their independence in response to guilt. The follow-up resolutions made by individual members after their limited group experience gave hope that they would accept the reality of their children's handicap so that these children would gain the full benefit of remedial education. (5 refs.)
E. L. Rowan.

No address

688 ROBINAULT, ISABEL P. Guidance to parents of children with cerebral palsy: Feedback from their letters. *Developmental Medicine and Child Neurology*, 11(4):504-511, 1969.

A survey of the letters received from parents of children with cerebral palsy indicates forcibly that they need a partnership with professionals who care about their problems and have techniques for helping. They need all the facts that our present information resources can gather and repeated opportunities to talk over alternatives with persons qualified to help them make, or remake, adaptive decisions. (13 refs.)
Journal summary.

United Cerebral Palsy Associations, Inc.
New York, New York 10016

689 WATTS, EVADEAN M. Family therapy: Its use in mental retardation. *Mental Retardation/MR*, 7(5):41-44, 1969.

In providing services for families with handicapped children there is constant need to re-evaluate methods in helping to find the most effective means possible. Family therapy is discussed as it is applicable in the field of MR. Three specific concepts of family therapy reviewed by the author are values, role identification, and family interpersonal relationships. Examples of the above theories as they occur in family group sessions are given, as well as illustrations of how family therapy was used effectively in short term treatment, a transitional tool, and in mitigation against scapegoating of a mildly retarded child. (15 refs.)
Journal abstract.

Mental Retardation Services
Luthern Welfare Services
Chicago, Illinois

690 SYKES, PETER. Family psychiatry applied to mental subnormality practice. *Teaching and Training*, 7(1):15-21, 1969.

A MR should be treated in the context of his family; he should not be permanently admitted to an institution. The MR maintained at home puts stress on the mother and tends to isolate the family, and temporary institutionalization will ease family tensions and avoid facility overcrowding. Requests to admit older persons may be prompted by social pressures of retirement and old age. One institution has reduced overcrowding and waiting lists by using increased out-patient programs, patients who return for a part of the year, and careful admission examination of the patient's family. (No refs.) - *M. Plessinger.*

Northgate and District Hospital
Morpeth, Northumberland, England

691 LUKENS, KATHLEEN; & PANTER, CAROL. *Thursday's Child has Far to Go*. Englewood Cliffs, New Jersey, Prentice-Hall, 1969, 248 p. $5.95.

A study of 4 families each of whom has a handicapped child reveals that the family members are frustrated, have guilt feelings, are subjected to social pressures due to the handicapped individual, and struggle for human identity for themselves and their children. Families of handicapped children find that they must revise their attitudes and adopt a new set of values if they are to compete effectively with the moral system of our society. They need to be cognizant of the fact that a conflict exists between others in society and what is in the best interest of their own child. Change is possible and is evident by the organization of parent groups in the nation whose goals are to change an intolerant public attitude to one of acceptance, tolerance, patience, and understanding. Handicapped children and their families are deprived not because of an impairment *per se* but because of the manner in which the disabled see themselves. The mildly impaired should be given every available opportunity to develop their capabilities so that they can take a respectable place in society. (16-item bibliog.) - *S. Half*.

CONTENTS: Song of David; The Chirping of a Sparrow; The Very Image of a Child; For the Best; The Handicapped Society.

692 TAFT, LAWRENCE T. Parents of autistic children. *Developmental Medicine and Child Neurology*, 11(1):104-106, 1969. (Annotation).

The study of early infantile autism is complicated by discrepant findings on the personality characteristics of the parents, the child-rearing practices of the parents, and the neurological and biological status of the children themselves. Continuing studies on the relative significance of heredity and environment are important. A multidisciplinary approach would be highly desirable. (19 refs.) - *J. M. Gardner*.

Albert Einstein College of Medicine
Bronx, New York 10461

PERSONNEL ASPECTS

693 THOMSON, ALLAN W. The role and problems of the family physician in the treatment and management of the mentally retarded child and his family. *Deficience Mentale/ Mental Retardation*, 19(2):17-19, 1969.

The successful management of the retarded child generally depends more on social adjustment than on purely technical medical procedures. This requires that the family physician be patient and be satisfied with small gains. Every effort must be made to provide the parents with early counseling so that they can understand their own reactions. Concern should also be noted for siblings. The physician should be aware of community resources available to the parents. (No refs.) - *J. M. Gardner*.

No address

694 BRADLEY, WILLIAM B. Prominent medical considerations in meeting needs of the retarded. In: Scheerenberger, R. C., ed. *Mental Retardation: Selected Conference Papers*. Springfield, Illinois, Illinois Mental Health Department, 1969, p. 118-124.

The physician's general responsibilities in the care and management of the MR include making as accurate a diagnosis as possible, evaluation of abilities and deficiencies, general evaluation of the child's functional level, routine pediatric care, prescription of appropriate therapies, and suggestion of facilitating and rehabilitation programs. Drug therapy can: control convulsive seizures; modify behavior; reduce anxiety, depression, and hyperactive and acting out behaviors; and relax muscles. Proper orthopedic treatment

can prevent or correct musculoskeletal anomalies and muscle imbalance, and corrective orthopedic surgery often increases independence, the development of self-care skills, and the overall independence of the person. Physical therapy is used to correct disabling physical problems, and the order and progress of treatment is geared to growth and development. Treatment methods include range of motion exercises, muscle and tendon stretching, muscle strengthening exercises, balance training, coordinating exercises, and gait training. (3 refs.) - *J. K. Wyatt.*

695 HAYNES, UNA H. Nursing approaches in cerebral dysfunction. *American Journal of Nursing*, 68(10):2170-2176, 1968.

Three case histories involving cerebral dysfunction in children exemplify how feeding and positioning disorders can be alleviated. An 8-month-old girl with a compulsory asymmetric tonic-neck pattern was held during successful feeding with her head maintained in the midline and both arms placed in front. Sucking was improved by circumoral cold and olfactory stimuli. While sleeping, any sound caused her to react in a marked Moro pattern; this was alleviated by having her sleep in a prone position. An abnormal extensor thrust was relieved by placing her in a side-lying position. The second case, a SMR, 3-year-old girl ruminated after each feeding; this appeared to be caused by the assumption by the infant of a position of marked opisthotonos on her right side and was corrected by turning her on her left side. Semisolids were first swallowed in a side lying position with her head in the midline, and a Teflon coated spoon was used in case of biting. In addition, she learned to drink with an uncollapsible plastic straw. The final case, an 18-month-old girl with spastic cerebral palsy was aided by a special high chair with a foot support, tray, and safety belt. (11 refs.) *V. G. Votano.*

United Cerebral Palsy Associations
New York, New York 10016

696 KLABER, M. MICHAEL. Mental retardation: A question of ethics for the consultant psychologist. *Community Mental Health Journal*, 5(2):180-185, 1969.

The consulting psychologist should consider the appropriateness of other alternatives before recommending institutionalization for an MR. Problems have been with the psychologist's lack of knowledge of MR and his tendency to think first of the convenience to the parents. Institutionalization means a long-term stay at a state school for MR. The program will often emphasize care, not treatment, with the MR unable to effect his own release--this comes only from parents or school staff. Often institutions have less qualified teachers than the public school special classes. Qualified health and behavioral specialists may not be available, and there is no proof that the MR is happier among other MRs. The institution encourages dependence, rather than self-sufficiency. To "protect" society from the MR, the child may be diagnosed as delinquent or severely emotionally disturbed. Jail, residential treatment centers, foster homes, or mental hospitals are alternatives to institutionalization. Parents must be given realistic expectations for their children and should investigate special classes and day-care centers as well as state institutions. The psychologist should have program information available and should be familiar with the program he recommends. Because of the lifetimeness of institutionalization, the only ethical reason for such a decision by a psychologist is the inability of the community and parents to keep the child. (9 refs.) - *S. Markworth.*

University of Hartford
West Hartford, Connecticut 06117

697 PICKLE, WILLIAM D. School counseling for the slow learner. In: Roucek, Joseph S., ed. *The Slow Learner*. New York, New York, Philosophical Library, 1969, p. 167-180.

The counselor should accept the slow learner for what he is and provide the time and attention needed to help him grow. Although slow learners may not have the same motivation as other students, they do desire to advance themselves. The counselor can improve teacher-student relations by providing effective in-service training that can change teacher attitudes and by serving as a consultant to teachers. The selective grouping system used in schools is damaging to the slow learner's expectations of himself, and counselors in these problem-producing systems should find innovative ways to help them find a measure of success. The school system should have a counseling atmosphere which emphasizes the identification and service of the slow learner's needs. The total educational program should emphasize emotional well-being and be concerned with individual worth and dignity. The counseling office should be a safe quiet place where the student can think through his problems in an atmosphere of reciprocal human interaction based on human need. Counselors with warm,

accepting, and understanding personalities are most effective. The counselor should make every attempt to reclaim potential school dropouts and should be capable of dealing with a variety of problems. The services of the counselor should extend beyond the school building to include work with parents and the community. (10-item bibliog.) *J. K. Wyatt.*

698 ANDERSON, ROBERT M.; & STEVENS, GODFREY D. Qualifications of teachers of mentally retarded deaf pupils in residential schools for the deaf. *Special Education in Canada*, 43(2):23-32, 1969.

A survey of the qualifications of teachers of MR deaf residential pupils indicates that expediency rather than training or qualifications of teachers determines placement. The population surveyed consisted of 80 residential schools for the deaf with a total population of 17,381; response came from 65 schools with 150 teachers completing the forms. Not all of the respondents answered all the items on the inquiry. Forty-three percent of the teachers had hearing losses; 22% of the teachers stated that they were teaching this population by choice, and 66% indicated that they preferred to instruct deaf pupils with no other handicap. Inadequate training was cited as a factor for concern as special training of teachers was not considered by administrators as important in assigning teachers for this population. Administrators rating criteria for selecting teachers for the MR deaf rated "high tolerance for limited educational progress" as most important factor. A need was indicated for improved training, higher salaries, increased stimulating work experiences, and specific knowledge in this area. A majority of the teachers of MR deaf children feel inadequately prepared and desire more training. (16 refs.) - *B. Bradley.*

Illinois State University
Normal, Illinois

699 KUNZE, LUVERNE H.; CAMPBELL, MARY M.; & McBAIN, KENNETH A. Interdisciplinary student training in mental retardation. *Mental Retardation/MR*, 7(1):15-19, 1969.

This paper describes an interdisciplinary training program in MR involving 12 students in 5 disciplines. Training included orientation to MR as viewed by several professions, participation in a team of professional persons engaged in the evaluation and management of MR children, and design and completion of individual clinical and research projects. The effectiveness of the training was evaluated through the administration of 3 evaluative tools before and after the experience. Comparisons were made between the experimental group and 3 other student groups and a professional group. The test findings, the expressed opinions of the students and staff, and the students' pursuit of further training and professional positions in MR suggest that the multidisciplinary approach to training in MR described in this paper is effective. (4 refs.) - *Journal abstract.*

University of Washington
Seattle, Washington 98105

700 MITCHELL, MARLYS MARIE. A graduate level practicum: A practical model. *Education and Training of the Mentally Retarded*, 4(1):17-19, 1969.

A summer graduate practicum experience provided teachers with new teaching techniques and MR students with small group instruction. The 19 children were from 3 intermediate levels of special education classes which met during the regular school year. The local school supplied classrooms, bus transportation, books, and an evaluation of each MR; the university supplemented the program with additional materials. The 8 teachers taught on alternate days in one of 5 academic classes. A university teacher observed and evaluated each practicum teacher and taught the class on intervening days in order to demonstrate new teaching methods. Discussion periods followed the practicum teacher's teach-observe-teach rotation. The program included field trips, crafts, cooking, and use of new games and tests. The MR benefited by receiving individual attention. (5 refs.) *M. Plessinger.*

University of North Carolina
Chapel Hill, North Carolina 27514

701 SMOKOSKI, FRED J. Teacher education: A change in emphasis. *Education and Training of the Mentally Retarded*, 4(2):89-92, 1969.

Education of teachers for the MR should include more classroom teaching and behavior study and less specific instruction on methods. Current teacher education tries to mold every teacher to a model by verbal and hypothetical experiences on how to teach. More study on human development, guidance, and psychology would give teachers insight into

individual MR differences. Frequent classroom observation and exchange of ideas in seminars would give prospective teachers an awareness of MR behavior. Instructional materials centers could expose the greatest number of methods to the widest audience. After a student teacher observed and participated in classroom activities, evaluation and exchange of ideas would benefit all. Teacher's individual differences should be considered, and it should be remembered that learning is only accomplished through actual teaching. (3 refs.) - *M. Plessinger.*

Idaho State University
Pocatello, Idaho

702 DICKIE, R. F.; & HODGE, WALLACE. Teacher training innovations: A new training model for teachers of the mentally retarded. *Focus on Exceptional Children*, 1(7):9-10, 1969.

A model curriculum to train teachers of MR provides general studies in normal and MR education and specific training in either primary or secondary education as well as student teaching and a senior seminar. Since the student does not prepare to teach all ages, there is time for more in-depth education, study of a different approach for each age group, and an emphasis on work-study programs for adolescents. Prospective teachers gain an understanding of MR and specific teaching methods for the age group they choose in their third year of education. The last year is specific study and a semester of student teaching; elementary teaching majors teach 2 groups from TMR, primary EMR, and intermediate EMR, and secondary teaching majors teach junior high and a work-study program. A senior seminar brings all students together to exchange views. (No refs.) *M. Plessinger.*

California State College
California, Pennsylvania 15419

703 POMICTER, CHARLES B. Round robin in-service training program. *Pointer*, 13(2):38-39, 1968.

In order to learn more about the teaching methods and problems of each other, teachers of special education students rotated classes one day each week. The objectives of this round robin included giving the teachers an overall view of the program, enabling the teachers to become aware of their colleagues teach-day, relieving daily routine, putting each other in the role of a substitute teacher, and having a basis for meetings during which mutual problems and advice could be given. It was observed that some teachers deviated from the prepared lessons and some children varied in their behavior. Suggestions from the weekly follow-up sessions included changes in seating arrangement, changes in the teaching order of subjects, more effective use of teacher aides, improved teaching and disciplining techniques, and more appropriate use of music with the TMRs. (No refs.) - *V. G. Votano.*

Board of Cooperative Educational Services
Pulaski, New York 13142

704 D'YACHKOV, A. I. Obobshchenie pedagogicheskogo opyta--zadacha kazhdogo defektologa (Generalization of the teaching experience--a problem of each defectologist). *Spetsial'naya Shkola*, 5(131):3-5, 1968.

The communication from one teacher to other teachers of successes and failures in working with MR pupils can be accomplished by talks at meetings, seminars, and conventions and by publishing works in scientific journals and collections of articles or books. From 1958-1968, over 800 works on teaching methods were published. There were 14 "Educational Lectures" held in the various republics. In January 1968, the first All-Union Educational Lecture was held with 820 reports heard *in toto* or in summary form. A recommendation is made that more articles on teaching methods be published for the benefit of other teachers. (No refs.) - *R. K. Butler.*

No address

705 KNOX, STANLEY C. Turnover among teachers of the mentally retarded. *Exceptional Children*, 35(3):231-235, 1968.

Variables associated with MR teacher turnover were determined by dividing the teachers into 2 groups, nonpersisting teachers (those who terminated before 2 yrs) and persisting teachers (those who taught for more than 2 yrs). Persisting teachers were older (39.2 as opposed to 34 yrs), worked in nonmetropolitan areas, were fully certified, had more experience, and were females. Factors which were not significantly different were higher salaries, laboratory experience, and amount of training. Further research to determine the importance of certification standards, length and type of training, laboratory

experience, and other educational experiences could have a profound effect on teacher preparation programs. (4 refs.) - *V. G. Votano.*

Saint Cloud State College
Saint Cloud, Minnesota 56301

706 MORDOCK, JOHN B.; & PLATT, HENRY. Selection and training of child-care workers. *Hospital and Community Psychiatry*, 20(8):227-229, 1969.

Very little research has been done on the relationships between intitutionalized children and those persons in the position of parent substitutes (psychiatric aides, houseparents, and other child-care workers) or between personality and effectiveness of these workers. At Devereux Foundation Institute for Research and Training (Devon, Pennsylvania) studies were undertaken to determine what attitudes were related to success in child-care work and what type of training would produce these attitudes. Although scores of the trainees on the Guilford-Zimmerman Temperament Survey and the Structured-Objective Rorschach test showed differences between trainees who completed the course, those who did not, and the general population, they were of little value in indicating where emphasis should be placed in training programs. The Inventory of Family Life and Attitudes showed that attitudes on authoritarian control, family harmony, encouraging expression, forcing maturity, and avoiding affection were closely related to success in child care. Before training, trainees showed a preference for authoritarianism over tolerance and affection; after a year of training, these were reversed. Further research is needed on how to measure attitudes and develop effective training methods so that child-care workers can be made more adequate parent substitutes. (7 refs.) - *E. F. MacGregor.*

Devereux Foundation Institute for Research and Training
Devon, Pennsylvania 19333

707 CLELAND, CHARLES C. Commuting practices and labor transfer potential. *Training School Bulletin*, 66(3):115-126, 1969.

Numerous studies have addressed the issue of attendant selection, and recent literature on mental health manpower attests to shortages in the helping fields. This survey, based on 682 attendants' responses to a 23-item questionnaire, reflected an effort to define constraints that discourage effective utilization of existent manpower. Commuting practices, transportation modes, labor market boundaries, referral sources, and demographic characteristics of attendants from 2 institutions located within the same city were studied to determine how these parameters might relate to partial resolution of the manpower shortage. (17 refs.) - *Journal abstract.*

University of Texas
Austin, Texas 78712

708 SAYDMAN, ARTHUR. The role of the volunteer aide. *Pointer*, 13(2):16-17, 1968.

Two volunteer aides who taught sewing to special education classes gave considerable help to the teacher as well as providing an important link between the community and the school. Aides should be made welcome by introducing them to the faculty and making them familiar with school procedures and philosophies. (No refs.) - *V. G. Votano.*

No address

AUTHOR INDEX

The author index has been compiled on the basis of abstract numbers rather than pagination.

Aarskog, Dagfinn, 311
Abuelo, Dianne, 289
Abul-Fadl, Y., 309
Adams, Julia, 402
Adams, M. S., 249
Adensio, Stanley H., 111
Afifi, A. K., 231
Ahearn, Joseph P., 392
Ainsworth, Patricia, 246
Ajero-Froehlich, L., 103
Al-Aish, Matti, 237
Alena, F. Paul, 69
Alesevich, Eugene, 456
Alexander, Duane, 237
Alexander, Eben, Jr., 228
Allen, F. H., Jr., 288
Allen, Richard C., 620
Allen, Robert J., 563
Alter, Blanche P., 245
Amador, Louis V., 219
Amiel-Tison, Claudine, 135
Amouretti, M., 97
Anderson, Robert M., 698
Anderton, N. E., 586
Ando, Toshiyuki, 169
Angele, Marie, 512
Ansari, B. M., 77
Ansay, Paul, 616
Anton, Aaron H., 571
Anostle, Christos Nicholos, 457
Arey, James B., 114
Arkansas. Rehabilitation Service, 542
Arledge, Robert L., 261
Aronovitz, Robert, 576
Atkins, Leonard, 317
Aubry, Richard H., 60

Bachmann, K. D., 144
Bachmann, Walter, 465, 491
Baden, Howard P., 166
Baerwald, Ann, 618
Baikie, A. G., 290
Baird, Dugald, 58
Balla, John I., 565
Balthazar, Earl E., 405, 412
Barber, Prudence S., 577
Bardis, Panos D., 478
Bargman, Gerald J., 286
Barnes, R. H., 206
Barrett-Connor, Elizabeth, 104
Basford, Alice B., 348
Bashore, R. A., 127
Baskakova, I. L., 364
Battaglia, F. C., 54
Baumeister, Alfred A., 370, 395
Baumgartner, Regula, 169
Bax, Martin, 40
Beals, Rodney K., 350
Beard, R. W., 53
Bearn, Alexander G., 200
Beck, Charles E., 599
Becker, Thomas T., 595
Beckman, Gwendolyn M., 70
Beischer, N. A., 62, 63, 64
Bell, Donald R., 377
Bell, Robert W., 370
Belok, Michael V., 273
Benderly, A., 84
Benirschke, K., 287
Bennett, Fay W., 657
Benson, Ralph C., 145
Berchert, Ronald J., 498
Berendes, Heinz, 145
Berg, J. M., 316
Bergouignan, M., 102
Bergren, W. R., 180, 182, 194
Berkman, Milton, 234
Berlin, Charles I., 243
Berry, Franklin M., 395
Bertelli, Aldo, 341
Bertrand, Patricia Tate, 652
Beutler, Ernest, 179, 187, 195
Bierman, Arthur, 544
Bijou, Sidney W., 367
Birch, Herbert G., 5, 305
Blake, J., 637
Blanc, W. A., 205
Bleidick, Ulrich, 480
Blum, D., 253
Blumenfeld, S., 248
Bodmer, Walter F., 126
Boggs, Margaret, 467
Bohusz-Szyszko, Marian, 408
Bolte, A., 144
Borkowski, John G., 392, 393
Bowden, Douglas M., 568
Bradley, William B., 694
Brandt, N. J., 185
Breakey, W. R., 208
Breitenbeck, Gerard, 625, 626
Brett, Edward, 279
Bricker, William A., 680
Brown, J. B., 63, 64
Brown, R., 115
Brown, Richard A., 686
Brown, T., 77
Brues, Alice M., 333
Brunschede, Horst, 192

Brusilow, Saul W., 245
Buckridge, R., 513
Buisson, J., 222
Buncher, Charles Ralph, 134
Butler, Bruce V., 430
Butterfield, Earl C., 521
Buynak, Eugene B., 79, 80

Cabanski, Stanley, 423
California. Mental Hygiene Department, 658
Callicott, Joseph H., Jr., 94
Callison, M. K., 513
Campbell, Barbara, 639
Campbell, Mary M., 699
Campbell, Rex R., 547
Canadian Association for Retarded Children, 488, 489, 490
Canadian Mental Health Association, 594
Cancel, C. A., 534
Cantolino, Salvatore J., 245
Cantrell, Virginia, 441
Carder, J. L., 624
Caro, G., 269
Carr, D. H., 338
Carre, I. J., 164
Carson, N. A. J., 164
Carter, C. O., 331, 332
Carter, Lamore J., 529
Carver, David H., 81
Caspary, R. E., 95
Cassady, George, 133
Casse, Robert M., Jr., 685
Cayler, Glen G., 240
Challacombe, D. N., 295
Chambers, Charles H., 417
Chambers, William R., 438
Chance, G. W., 163
Chang, Y. S., 337
Chase, H. Peter, 204
Cheatham, Goode R., Jr., 218
Cherington, Michael, 236
Chess, Stella, 13
Chin, Philip C., 538
Chou, Frank, 96
Christoff, Nicholas, 280
Cimolini, M. J., 496
Clark, Daniel, 220
Claudel, Calvin, 474
Cleaver, James E., 262
Cleland, Charles C., 554, 629, 707
Clough, M. F., 445
Clifford, John H., 116
Cobb, Katherine, 67
Co He, Simonne, 433
Cohen, Maimon M., 44
Cohen, M. Michael, Jr., 229, 238
Cohen, P. E., 325
Cohen, Sanford N., 121
Coldiron, John S., 349
Coleman, Howard M., 439
Collins, Joseph, 444
Collmann, R. D., 306,307
Coltart, T. M., 53
Colwell, Cecil, 469
Connon, Aileen F., 117
Conroy, Charles W., 576
Contrucci, Victor J., 451
Coon-Teters, Floria, 523
Cooper, Max D., 129
Corcoran, Daniel, 504
Cornish-Bowden, Joyce, 642
Cornwell, Anne Christake, 305
Court Brown, W. M., 323
Cowden, Kenneth, 558
Cox, Artelia Moore, 500
Cramblett, Henry G., 90
Crenshaw, Carlyle, Jr., 55
Cumings, John N., 47, 158

Dagoni-Weinberg, Elise, 533
Dahlqvist, A., 196
Dancis, Joseph, 41
Danes, B. Shannon, 56, 200
Danks, D. M., 108
Darling, Donald B., 234
Darlington, Gretchen A., 190
Das, J. P., 9, 401
Davidson, V. Trent, 627
Davies, D. L., 11
Davies, Jack, 294
Davies, Pamela A., 59, 246
Davis, Courtland H., Jr., 228
Davis, Shirlee D., 272
Davis, William E., 641
Dawson, Sarah Taylor, 439
Day, R. H., 391
Dayton, Peter G., 137
De Canoa, A., 288
De Castro, Fernando J., 427
De Grouchy, Jean, 318
Dehaene, Ph., 202
De La Cruz, Felix, 237
DeLemos, Robert A., 89
Dellinger, W. S., 205
Delorimier, Alfred A., 244
Del Porto, G., 342
Demos, George D., 272
De Muralt, G., 119
De quiros, Julio Bernaldo, 420
Desmyter, Jan, 72
Destine, Marie L., 114
Dickie, R. F., 702
Diener, M. M., 205
Di Leo, Joseph H., 434
Disbrow, Marilyn, 467
Dische, M. Renata, 67
Dodion, J., 253
Dodson, W. Edwin, 237
Dollar, Mary, 505
Dolman, Clarisse L., 258
Donati, Luigi, 341
Donnell, G. N., 180, 182, 194
Donohoe, W. T. A., 106
Dörrie, Klaus, 30
Dos Santos, Joao G., 94
Downey, Mary, 660
Doyle, L. Thomas, 393

Dray, Fernand, 318
Drew, Clifford J., 399
Drillien, C. M., 51
Droegemueller, W., 54
Duche, D. J., 266
Duenas, Danilo A., 98
Dul'nev, G. M., 455
Duma, Richard J., 91, 94
Duncanson, Neil, 314
Dunlop, D. L., 146
Dunn, H. G., 258
Dunn, J. A., 206
Dunn, James Michael, 143
D'Yachkov, A. I., 31, 452, 453, 704
Dybwad, Gunnar, 598
Dybwad, Rosemary F., 598

Earle, Kenneth M., 263
Eastham, R. D., 340
Ebbin, Allan J., 140
Edmonson, Barbara, 466
Egan, Edmund A., II, 124
Eichenwald, Heinz F., 67, 203
Elema, J. D., 168
Elizan, T. S., 103
Ellingson, Robert J., 8
Ellis, Norman R., 1, 2, 371
Ellison, George W., 130
Elmer, Elizabeth, 684
Engel, Eric, 294
English, George E., 405, 412
Ershova, V. K., 33
Ertel, Inta J., 125
Esterly, Nancy B., 245
Evans, J. H., 62
Evans, P. R., 230
Evers, Carl G., 210
Ewert, Josephine C., 241
Eyman, Richard K., 17, 645

Fabiyi, A., 103
Fagan, Joseph F., III, 389
Faulkner, R. E., 612
Faunch, Janet A., 316
Favara, Blaise E., 247
Fay, Warren H., 418
Feigin, Ralph D., 93
Feingold, Murray, 234, 235, 289, 317
Feldman, Marcus W., 126
Feldman, Roger A., 68
Feldt, Robert H., 241
Fendell, Norman, 560, 561
Ferguson, Jean, 290
Ferguson-Smith, M. A., 329
Ferrell, Harold W., 91
Figueroa-Longo, Juan G., 111
Fine, Marvin J., 567
Fink, B. Raymond, 348
Finley, Jerry, 547
Fischer, Rosilda, 502, 503
Fischer-Williams, M., 356
Fisher, Mary Anne, 373
Fisher, Russell S., 139
Fishler, Karol, 618
Fixsen, Dean L., 380
Flavigny, H., 269
Flood, Nancy C., 535
Foley, Kathleen M., 200
Fonkalsrud, Eric W., 244
Forehand, Rex, 395
Forfar, J. O., 250
Formby, D., 222
Foster, Ray, 436
Fox, R., 537
Frampton, Merle E., 614
Franks, Robert C., 217
Freeburg, William, 669
Freeman, R., 131
Freeman, Thomas S., 123
Frerichs, Allen H., 483
Freundlich, E., 84
Friedman, A., 84
Friedmann, G., 144
Friedrich, Ursula, 297, 336
Fry, Peggy Crooke, 203

Gabriele, Orlando F., 220
Gaidusek, D. Carleton, 263
Gall, John C., Jr., 285
Gallagher, Joseph M., 400
Gallez, A., 296
Galloway, Charles, 681
Galloway, Kay C., 681
Garcia, Julio H., 98
Gardner, James M., 526
Gardner, Lytt I., 296
Gardner, William A., Jr., 128
Garrettson, Lorne K., 137
Garson, O. Margaret, 290
Garud, Mohini A., 61
Gath, Isak, 282
Gaza, Caesar, 544
Gedda, L., 342
Gehrecke, Siegfried, 520
Geiser, C. F., 292
Gellis, Sydney S., 235, 277
Gerber, Stuart A., 687
Gerdy, Donald F., 461
Gerjuoy, Irma R., 366, 397
Gessner, Ira H., 124
Geteles, Frances, 544
Gibbs, Clarence J., Jr., 263
Gibson, John, 638
Gibson, Ralph M., 427
Giehr, Elisabeth, 406
Giordano, A., 344
Gitzelmann, Richard, 186
Goffeney, Barbara, 430
Gold, A. P. 288
Golden, George J., 564
Golden, June T., 475
Gollub, Michael H., 140
Good, Robert A., 129

Goodwin, Bernice G., 582
Gorham, William, 656
Gorlin, Robert J., 229, 238
Gould, Laurence J., 521
Goulet, L. R., 369
Gourevitch, A., 211
Graebner, Oliver F., 643
Graham, James T., 435
Granholm, Lars, 214
Green, Morris, 604
Greenstein, Melvin, 36
Greer, C. H., 290
Greer, Melvin, 571
Groden, Gerald, 358, 383
Groff, Linda Brundage, 665
Gross, Douglas M., 535
Grossman, Herbert J., 34
Gruen, Gerald, 386
Gruson, R., 251
Grutzner, Jocelyn, 73
Gügler, Alois, 501
Gunzburg, H. C., 634
Guskin, Samuel L., 458
Guthkelch, A. N., 213
Guthrie, George M., 410
Guthrie, R. A., 207

Haerer, Armin F., 210
Haggerty, Robert J., 89
Halbert, David R., 55
Hall, John B., 45
Hall, Leon P., 428
Hall, T., 537
Hambling, M. H., 77
Hammersly, Marjorie F., 70
Hamre, Raymond A., 622
Hampole, M. K., 325
Hanaway, J. K., 345
Hansen, R. G., 177
Harden, Ann, 257
Hardy, James C., 149
Harrod, Emma K., 44
Hartlage, Lawrence C., 553
Haynes, Ralph E., 90
Haynes, Una H., 695
Hays, Daniel H., 244
Heal, Laird W., 384
Hecht, Frederick, 314
Heinz, Harold W., 575
Henchman, D. C., 201
Henderson, Norman B., 430
Henderson, Shirley, 443
Henker, Barbara A., 653, 654
Henry, P., 43, 259
Herlein, Richard D., 477
Hewer, Richard L., 260
Hey, E. N., 255
Hibbard, Lester T., 147
Higgins, James V., 314
Hilleman, Maurice R., 79, 80
Hillman, Janet C., 312
Hinton, Pamela, 150
Hirsch, Irwin, 682

Ho, William, 198
Hodge, Wallace, 702
Hodges, Alton, 572
Hoefnagel, D., 287
Hoff, Elaine McNab, 606
Hoffman, Julius, 227
Hofmann, Wilhelm, 460
Holder, Loreta, 443
Holt, Kenneth S., 161
Hommes, F. A., 168
Honkins, Ian, 165
Horger, E. O., III, 110
Horvath, Joanne M., 511
Hovi, T., 76
Howell, P., 115
Hrstka, V., 299, 300
Hradsky, M., 299, 300
Hsia, David Yi-Yung, 172, 183, 184
Hubinont, P. O., 253
Hudson, Floyd G., 464
Hulicka, Irene M., 271
Hurst, Charles G., Jr., 274
Hutchinson, Donald L., 110
Hutt, Corinne, 419
Hutt, S. J., 419

Illingsworth, R. S., 424
Illinois Association for the Mentally Retarded, 592
Illinois. Mental Retardation Services Division, 648
Inouye, Tohru, 183, 184
Irigaray, Luce, 404

Jabbour, J. T., 98
Jack, Ian, 73
Jackson, C., 54
Jackson, John F., 210
Jackson, M. S., 678
Jackson, R. L., 207
Jacobs, Augustus M., 593
Jacobs, Patricia A., 323, 326
Jacobson, Ilse L., 509
James, Vernon L., Jr., 679
Jancar, J., 340
Jansen, J. F., 168
Janzen, Martha K., 285
Jara, Oscar, 219
Jenkins, Julia, 96
Jensen, Arthur R., 264, 360
Jensen, Klaus, 92
Jerrold, M. A., 537
Jervis, George A., 7
Johnson, G. F., 426
Johnson, J. T., 378
Johnson, John T., Jr., 384
Johnson, Kathleen, 138
Johnson, Stephen M., 686
Johnson, T., 115
Jones, Elise, 66

Jones, Muriel M., 91, 94
Jones, Philip R., 611
Jonniaux, G., 160
Jonxis, J. H. P., 168
Jorgensen, Harold C., 484
Josso, Nathalie, 318
Jubenville, Charles P., 580
Julius, Richard L., 124

Kahana, D., 84
Kaltreider, D. Frank, 254
Kane, John, 380
Kaplan, Arnold R., 308
Kassabov, Latchezar, 343
Kattine, Anthony A., 284
Katz, G., 255
Kaufmann, Inge, 363
Kavenggia, Elizabeth, 304
Keay, A. J., 326
Kederis, Antoinette, 482
Keen, J. H., 278
Kelch, Robert P., 285
Kellas, George, 370, 385, 398
Kelly, David L., Jr., 228
Kelly, Elizabeth, 544
Kelly, Patrick C., 121
Kenney, Mary W., 472
Kenny, Frederic M., 71
Keogh, Barbara K., 396
Kerney, Ellen, 614
Kerr, Nancy J., 527
Kibler, Robert F., 96
Kieran, Richard A., 623
Kimberling, William J., 314
Kingsley, Ronald F., 667
Kinhard, Ernst J., 573, 574
Kirchner, Dorothea, 569
Kirman, Brian H., 46, 298
Klaber, M. Michael, 521, 696
Klapper, Zelda S., 4
Kleinman, David S., 70
Kliemann, F. A. D., 257
Klonoff, H., 136
Knight, Marcia S., 381
Knox, Stanley C., 705
Koch, Richard, 194, 618
Koenigsberger, R., 288
Kokaska, Charles J., 485
Komrower, George M., 167, 173
Konigsmark, Bruce W., 128, 243
Konstantinova, Blaga, 343
Konatic, Neda, 388
Konatic, Nicholas J., 388
Kornblum, Ronald N., 139
Kramer, Simon, 209
Kremer, Michael, 47
Krone, Winfrid, 192
Kronfol, H. J., 90
Krooth, Robert S., 199
Kubaiko, James H., 485
Kuipers, J. P. G., 168
Kumbhani, N. K., 315
Kunce, Joseph T., 547, 551
Kunze, LuVerne H., 699
Kurtz, Richard A., 651
Kushlick, Albert, 631
Kysar, John E., 536

LaDriere, LaVerne, 428
Lake, B. D., 258
Lampert, Peter W., 263
Lamson, E., 337
Landing, Benjamin, 262
Landon, M. J., 118
Lane, J. Michael, 86
Lang, J. L., 270
Lange, Erwin F., 484
Lanzen, Heinrich, 519
Lapouse, Rema, 20
Larsen, Lawrence A., 630
La Torre, E., 226
Laufs, R., 78
LaVeck, Gerald D., 21
Lawson, J. S., 23
Leach, Ethel M., 466
Leagus, M. Bernice, 79
Lebenshilfe Pedagogical Committee of the Federal Union, 447
Leland, Henry, 466
Lemmi, Helio, 98
Lenow, Martha L., 82
Lesak, Eleanor, 578
Lev, L. Jay, 610
Levkoff, Abner H., 141
Levy, Harvey L., 166
Ley, A., 103
Lippmann, Leopold, 597
Linsett, M. B., 319
Linsett, Rene, 609
Lischner, Harold W., 114
Liss, Leopold, 227
Lloyd, Lyle L., 354
Loeb, M., 160, 253
Logue, Valentine, 212
Lovaas, O. Ivar, 525
Love, Harold D., 14, 15, 422, 440, 442, 677
Lowe, Ernest W., 225
Lozzio, Carmen B., 284
Lucas, Mary, 291
Lucey, J. F., 113
Lugo, Gustavo, 133
Luke, Koon-Hung, 120
Lukens, Kathleen, 691
Lund, Birthe, 297
Lund, Ronald R., 218

MacKeith, Ronald, 40
Macnab, Joan, 329
Magrath, Donald, 635
Mahin, Dorothy, 514
Mahoney, Kurt, 527
Mahoney, Robert J., 547
Makin, Dorothy, 506
Makowski, E. L., 54

Mann, Jillian R., 211
Margolin, Reuben J., 564
Markham, R. L., 321
Martin, Harold P., 204
Massachusetts. Mental Retardation Division, 590
Massie, Willman A., 559
Match, Elmer, 539
Matheny, Adam P., Jr., 530
Mathews, Pat, 116
Matsuda, Ichiro, 239
Matsuura, Nobuo, 239
Maurer, Harold M., 120
Maurin, Ph., 43, 259
Maxwell, P. M., 321
May, David P. L., 61
Mayeda, K., 293
Mayes, Jary S., 197
McBain, Kenneth A., 699
McCracken, George H., Jr., 67
McDonald, Joan, 618
McGrath, Robert A., 393
McIntosh, A. J., 201
McKhann, Guy M., 198
McKneally, Sarah, 96
McKusick, Victor A., 243
McManis, Donald L., 357, 377
McReynolds, Leija V., 524
Meeuwisse, Gunnar W., 170, 171
Meier, Gilbert W., 339
Melin, Kerstin, 170, 171
Mellman, W. J., 178, 188
Melnick, Joseph L., 72
Melnyk, John, 262
Melville, Marie M., 326
Mengel, Marvin C., 243
Menkes, John H., 310
Menolascino, Frank, 372
Meyerson, Lee, 527
Michaelis, R., 251
Michaels, Richard H., 71, 74
Michaux, L., 265
Middelkamp, J. Neal, 93
Miezio, Stanley, 566
Mikamo, K., 328
Mikkelsen, Margareta, 297
Milby, Thomas H., 123
Milgram, Norman A., 382
Milhorat, Thomas H., 215
Milic, Ann M. B., 224
Millar, J. D., 86
Miller, Betty S., 619
Miller, Curtis R., 645
Miller, James A., Jr., 143
Miller, James R., 314
Miller, Max, 541
Miller, O. J., 288
Millis, Rosemary R., 87
Miltenberger, Gerald E., 577
Milunsky, Aubrey, 313
Misenhimer, H. Robert, 254
Mitchell, James E., 123
Mitchell, M., 179
Mitchell, Marlys Marie, 700
Mittler, P. J., 416
Mockel-Pohl, S., 160
Molloy, Julia S., 471
Monaghan, Anna E., 508
Monk-Jones, M. E., 321
Montgomery, Theodore A., 70
Moor, L., 267, 362
Moore, Ernest J., II, 577
Mooring, Ivy M., 585
Mordock, John B., 706
Morgan, E. A., 346
Morgan, Sam B., 394
Morley, A. R., 221
Morris, C. Richard, 88
Morris, E. J., 550
Morris, Hughlett L., 149
Morrison, Joseph V., Jr., 94
Muehlberger, Carl E., 517, 518
Mueller, Max W., 431
Murakami, E., 446
Murphy, E. G., 361
Murphy, William K., 599
Murthy, D. Y. N., 207

Nabholz, Markus, 126
Nadler, H. L., 183, 184
Naeye, R. L., 205
Naiman, J. Lawrence, 114
Nance, Walter E., 294
Nankervis, George A., 82
Neal, B. W., 378
Neal, Larry L., 659
Neal, Thomas, 481
Neff, John M., 86
Neise, Karl, 29
Nelson, C. Michael, 464
Nelson, E. Clifford, 91, 94
Nelson, M. M., 250
Nesbitt, Robert E. L., Jr., 60
Netley, C., 355
Netsell, Ronald, 149
Neu, Richard L., 286
Newcombe, Howard B., 39
Newton, William A., Jr., 125
Nezelof, Christian, 318
Ng, W. G., 180, 182
Nielsen, J., 297, 336
Nievaard, J. Edward, 314
Nihira, Kazuo, 436, 437
Nikolaev, S. F., 666
Niles, John H., 225
Niswander, J. D., 249
Niswander, Kenneth R., 252, 352
Noble, J., 101
Noce, James S., 382
Nolde, S. Van L., 403
Nolte, Renalte, 251
Nora, James L., 320
Nuyts, J. P., 202, 232
Nyhan, William L., 169

O'Brien, John S., 199
Occhiginti, E., 226

O'Connor, John F., 234
O'Connor, Neil, 374
Odell, Gerard B., 121
Ogino, S., 446
Ohlrich, Elizabeth S., 376
Okada, Shintaro, 199
Oliver, Margret, 655
O'Morrow, Gerald S., 661
Opitz, J. M. 303
Oregon. State Education Department, 587
Ortega, Lourdes G. 663
Ott, John E., 223, 236
Oxley, A., 118

Page, M., 426
Palmer, H. D., 116
Palmisano, Paul, 133
Pampiglione, G., 257
Panter, Carol, 691
Panzer, Charles, 670
Park, Ethel V., 476
Parken, D. S., 603
Partridge, J. W., 87
Paschke, Richard R., 379
Pattullo, Ann, 353
Pearson, John, 392
Pekelis, E. Ya., 454
Pelegrina, Ivan A., 111
Pendrey, Madeleine J., 316
Perel, James M., 137
Petit, P., 296
Pfeiffer, R. A., 315
Phelps, William R., 549
Philippus, Marion John, 425
Pickard, Robert E., 85
Pickering, K. W., 337
Pickle, William D., 697
Picon, Regine, 318
Pike, Earl O., 377
Pinder, Stan, 646
Platt, Henry, 706
Polani, N., 327
Polani, P. E., 327
Pomeroy, J., 287
Pomicter, Charles B., 703
Pond, W. G., 206
Ponte, C., 202, 232
Poole, Belle Dale, 70
Porras, Cesar L., 219
Poznanski, Elva, 276
Prabhu, G. G., 548
Prabhu, M., 548
Price, H. V., 122
Price, W. H., 323
Probstein, Irwin, 605
Prosser, E. Jane, 361
Pullen, Martha M., 397
Punnett, Hope H., 114
Puyau, Francis A., 294

Ragland, James, 98
Raiborn, Charles, 198
Ranek, Leo, 92
Ranier, Jacqueline, 387
Rappaport, Raphael, 318
Rasheed, S., 142
Rausen, Aaron R., 67
Rawls, William E., 72, 88
Rayner, R. H. W., 211
Reed, William B., 242, 262
Reiland, Robert F., 492
Reinartz, A., 429
Reinhart, John B., 684
Reiquam, C. W., 116
Renz, Paul, 459
Renzaglia, Guy A., 602
Rhodes, K., 321
Richards, B. W., 650
Riches, P., 115
Ridler, M. A. C., 316
Riley, N. A., 213
Roberts, C. J., 65
Roberts, D. F., 330
Robertson, Charles H., 218
Robertson, Jean, 632
Robinault, Isabel P. 688
Robins, A. J., 167
Robinson, Arthur, 181, 223, 236
Robinson, G. C., 136
Robinson, Norman, 260
Rochester Architectural Barriers Project Committee, 591
Rock, Herbert, 618
Roos, Philip, 655
Root, Corinne, 515
Rosdahl, Nils, 92
Rosenthal, I., 196
Rosenthal, M., 552
Ross, Dorothea, 674
Ross, G. T., 319
Ross, Leonard E., 376
Roth, John B., 109
Rothenberg, Michael B., 568
Roucek, Joseph S., 16
Rovera, G. G., 462
Rozenfeld, Irving H., 35
Ruben, Frederick L., 86
Rudd, B. T., 163
Ruddell, Lester D., 540
Rusalem, Herbert, 544
Russell, James D., 191
Rybak, W. S., 683
Ryckewaert, Ph., 202

Sacks, Marian, 507
Saettler, Paul, 450
Sahlmann, Lotte, 415
Salvia, John, 432
Sanders, Christopher, 18, 526
Sanite-Marie, Paul, 644
San Joaquin, Venusto, 93
Saxl, O., 299, 300, 301
Saydman, Arthur, 708
Schattner, Regina, 614
Scheerenberger, Richard C., 10, 448, 581

Schemp, Wallace F., 479
Schenker, S., 127
Schindler, A. M., 292
Schirmer, Gene, 468
Schlaepfer, William W., 132
Schmidt, E., 144
Schneeberger-Ataide, J., 570
Schuler, Nancy, 579
Schulte, F. J., 251
Schütt, Maria, 491
Schwarz, Robert H., 463, 487
Schwarz, V., 175
Schweiger, James W., 149
Scott, Donald, 281
Scott, Keith G., 368
Scott, Marcia Strong, 368
Scott, Robert B., 309
Segal, Irv., 615
Segal, Stanton, 176, 189
Seifart, O., 429
Selden, Pamela, 96
Sersen, Eugene A., 375
Seto, Dexter S. Y., 81
Sever, John L., 69, 98, 103
Shafter, Albert J., 600, 602
Shapira, Raymond, 96
Shehan, Lawrence P., 473
Shelton, Leslie W., Jr., 112
Shepherd, Michael, 11
Sheron, Arvilla A., 522
Shif, Zh. I., 32
Shih, Vivian E., 166
Shinefield, Henry R., 67
Shipman, R. T., 165
Shores, Richard E., 463
Sidbury, James B., Jr., 174
Siegel, Paul S., 365
Silenzi, M., 233
Silverstein, A. B., 421
Simensen, Richard J., 459
Simmons, James Q., 525
Simmons, Stanley C., 61
Simon, Seymore, 379
Sinclair, John C., 349
Sinclair-Smith, Bruce C., 294
Singer, Dorothy, 687
Singer, Judith E., 252, 352
Sinha, Anil K., 320
Sinha, Y. N., 206
Sistek, Harriet R., 664
Sloan, William, 581
Slocum, Jean, 640
Smith, D. S., 115
Smith, Edward T., 148
Smith, F., 127
Smith, Ferne A., 486
Smith, George S., 314
Smith, Hazel, 662
Smith, Joan L., 470
Smith, M. A., 63
Smith, Moyra, 329
Smith, W. Lynn, 425
Smokoski, Fred J., 701
Smythe, P. M., 359
Snyderman, Selma E., 154
Sondersorge, Rudolf, 25
Soroosh, Farhang, 218
South, Mary Ann, 88, 129
Sparks, Howard L., 528
Spencer, D. A., 637, 647
Spicker, Howard H., 458
Spies, Carl J., 667
Spitzer, Robert L., 19
Spradlin, Joseph E., 380
Springer, Merle E., 607
Springmann, L., 144
Stabler, Elizabeth M., 676
Städeli, H., 532
Stafford, Charlotte, 495, 516
Stein, Arthur M., 140
Steinicke, O., 297
Stephen, Elspeth, 630, 632
Stephens, M. Carla, 310
Sternberg, Robert, 662
Stevens, Godfrey D., 698
Stewart, Ann L., 326
Stewart, Mary K., 443
Stickler, Gunnar B., 241
St. Lawrence, Donald, 37
Stoch, M. B., 359
Stocker, F., 119
Stokes, Joseph, Jr., 79, 80
Stoler, Sigmund, 557
Stoller, A., 306, 307
Stolz, Stephanie B., 531
Stone, D., 337
Storey, Bruce, 162
Stotsky, Bernard A., 564
Stouracova, O., 301
Strachan, D. N., 206
Stratton, F., 115
Strussberg, S., 84
Sugai, Motonobu, 239
Sugarman, Gerald I., 242, 262
Summitt, Robert L., 247
Swaak, A. J., 584
Swartz, Jon D., 554
Sykes, Peter, 690

Taft, Lawrence T., 692
Takeda, Takeo, 239
Taminelli, F., 119
Tarian, George, 645
Tauber, Abraham, 475
Taylor, Angela, 295
Taylor, Isabelle Wagner, 414
Taylor, Raymond G., Jr., 493
Tedesco, T. A., 178, 188
Terada, Akira, 399
Thelander, H. E., 671
Theodoridis, C. G., 163
Thomas, Alexander, 13
Thomas, Mary, 444
Thompson, G., 136
Thompson, Margaret W., 361
Thomson, Allan D., 693
Thomson, H. G., 325
Thomssen, R., 78

Thuline, Horace C., 314
Tichy, J., 299, 300, 301
Tischler, Blume, 314
Tizard, Jack, 12
Tjio, J. H., 319
Todd, Boone, 683
Tomiyasu, Y., 446
Tompkins, Wayne A. F., 88
Tondeur, M., 160
Tondury, G., 99
Toole, James F., 38
Torre, M., 462
Tousant, Aldonia B., 510
Townley, R. R. W., 165
Townsend, Lance, 62, 63, 64
Townsend, Peter, 649
Trickey, M. B. A., 53
Tsikoto, G. V., 494
Tsuboi, T., 297, 336
Turkewitz, Gerald, 5

Udvadia, T. E., 216
Ulivelli, A., 233
United States Health, Education, and Welfare Department, 28
  Education for Handicapped Bureau, 583, 588, 589
  Public Health Service, 48
Utz, John P., 94

Vaananen, P. 76
Vaheri, A., 76
Valentine, G. H., 324
Vamos-Hurwitz, E., 160
Van Bentham, J., 407
Vanier, Jean, 608
Van Kempen, G. M. J., 256
Van Wagenen, R. Keith, 527
Varon, Silvio, 198
Vaughn, Kenneth L., 427
Vengrzhinovskii, V. V., 493
Vesikari, T., 76
Vigo County School Corporation, 545
Vlasova, T. A., 32
Voeller, Kytja, 6
Von Bonsdorff, C. -H., 76

Wald, Stewart, 294
Walder, Leopold, 682
Walker, E. F., Jr., 206
Walker, Frank A., 314
Walker, W., 118
Wallin, J. E. Wallace, 562
Warlow, Charles P., 150
Warren, Lynda W., 409
Watson, Luke S., 526
Watts, Evadean M., 689
Weibel, Robert E., 79, 80
Weiden, H., 144
Weidman, William H., 241
Weinschenk, Curt, 569
Weiss, David J., 409
Weiss, Lester, 293
Weiss, William, 145, 252
Weisse, Ulrike, 251
Weisskopf, Bernard, 413
Weitzner, Martin, 20
Wells, W. W., 193
Wenzell, Victor P., 601
Western Interstate Commission for Higher Education, 628
Westphal, Milton, Jr., 252, 352
West Virginia. Vocational Rehabilitation Division, 546
Whalen, Carol K., 653, 654
Wheeler, Maxine, 449
Wheeler, Warren E., 679
White, Lon R., 69
Whitehead, J. A., 636
Whiting, H. T. A., 426
Whitman, James E., Jr., 79, 80
Widlocher, D., 268
Wildbolz, A., 159
Wilkin, P., 253
Wilkins, John L., 57
Wilmington Public Schools, 543
Wilson, J., 258
Wilson, John, 157
Wilson, Miriam G., 140
Wilson, Paul T., 19
Wilson, Warner, 24
Winter, S., 84
Winters, John J., Jr., 366, 397
Winthron, Henry, 275
Wisconsin Association for Retarded Children, 302
Witkowski, Tadeusz, 411
Witt, Byrn T., 471
Wolf, Montrose M., 531
Wolfensberger, Wolf, 372, 651
Wolff, James A., 120
Wolff, O. H., 155
Wolff, Peter H., 351
Wolfson, Justin, 238
Wollheim, Frank A., 129
Womack, W. M., 207
Wood, Tom, 672, 673, 675
Woodrow, J. C., 106
Woolf, L. I., 156
World Health Organization, 153, 335
Wortis, Helen, 49
Wortis, Joseph, 3, 50
Wright, H. J., 537
Wright, S. W., 334
Wurster, D., 287
Wyatt, Thomas H., 55

Yarborough, Ralph W., 596
Yavkin, V. M., 52
York-Moore, M. E., 633
Young, Biloine W., 497

Young, J. A., 142
Younie, William J., 528

Zeaman, David, 373
Zechiel, Larry, Jr., 668
Zigler, Edward, 386
Zilkha, K. J., 105
Zollinger, H., 322
Zsako, Steven, 308
Zubeck, John P., 27

SUBJECT INDEX

The subject index has been compiled on the basis of abstract numbers rather than pagination.

Abortion
  in women w/ chromosomal translocation D/D, 291
Accident
  burns, neurological disorders after, 150
  head injury,
    BI fr, prognosis for, 136
    pituitary gland injury fr, 139
Acetylcholinesterase
  in red blood cells, as criterion for exchange transfusion in ABO incompatibility, 119
Acetylhexosaminidase
  β-D-N-, absence in Tay-Sachs' disease, 199
Achievement (See under Education; Education, special)
Acid-base equilibrium
  of blood and cerebrospinal fluid in hydrocephalus, 214
  of fetal blood, fetal distress in relation to, 53, 61
Adaptive behavior (See Behavior)
Adjustment/Personal - social
  adolescent, parents and educational agencies in relation to, 523
  of adults,
    to children, child abuse in relation to, 684
    evaluation of MR, vocational rehabilitation and, 36
    teacher education and MR, 528
  in ep, rehabilitation success and, 565
  of family,
    and child with learning disorder, 413
    to handicapped child, 691
  inadequacy, feelings of, and, 407
  inst, social relations and, 521
  in job success, spec ed work-study programs and, 539
  moral sensitivity, 411
  music in, 578
  of parent of MR child, professional's responsibility in, 685
  of PMRs, toilet training and, 527
  psychological needs of handicapped, 414
Administration (See under specific program)
Adolescence/Adolescent
  attention span c/w normals, 364
  behavior disorder in, treatment of, case study, 568
  group therapy w/ inst, 566
  puberty in female, 353
  social adjustment of, parents and educational agencies in, 523
  social perception of normals toward EMRs, 459
Adoption
  assessment for, 424
Adrenal glands
  in hydrocephalus, 217
  in Prader-Willi syndrome, 163
Adult
  adjustment of MR, teacher education and, 528
  attitude toward children, abused children in relation to, 684
  w/ de Lange syndrome, case report, 236
  diagnosis and evaluation of MR, 36
  MR, small community homes for, 608
Agencies (See also specific agency)
  legislative manual for MR, in Illinois, 592
Amaurotic familial idiocy (See Lipoidosis, cerebral)
Ameba
  meningoencephalitis fr free-living, 91, 94
Amino acids (See also Metabolism; specific headings)
  in encephalitogenic proteins, 96
  metabolism of,
    disorder of, in newborn, 167

Abbreviations:

BI	brain injury, brain injured	inst	institution, institutionalized
CNS	central nervous system	MR	mentally retarded
CP	cerebral palsy	PMR	profoundly mentally retarded
c/w	compared with	SMR	severely mentally retarded
EMR	educable mentally retarded	spec ed	special education
ep	epilepsy	TMR	trainable mentally retarded
fr	from	w/	with

inborn,
biochemical aspects, 156
dietary treatment of, 155
Aminography (See Radiography)
Amnion and Amniotic fluid
creatinine in, gestational age of fetus and, 54, 55
in hemolytic disease of newborn
prognosis, 117, 118
in prenatal diagnosis, 41
prolonged pregnancy and, 64
Amphetamine
dextro-
behavior response to, 571
Anencephaly
racial factors in, 224
Anesthetics
teratology of, 348
Angiography (See Radiography)
Animals
MR in, research on, 339
Anoxia
in newborn, hypothermia w/ positive pressure ventilation in treatment of, 143
Antibiotic
in spina bifida surgery, 222
Antibody
anti-D_γ-globulin, in protection against Rh-hemolytic disease, 106, 107, 109
anti-Lan, hemolytic disease in newborn fr, 115
auto-
to thyroid gland, in Down's syndrome, 311
to rubella, 78
in children, 77
Apgar score (See Infant)
Aphasia (See Language)
Appliances
automatic toothbrush for MRs, 576
hearing-aids, for deaf MR, 577
for velopharyngeal dysfunction treatment in CP, 149
Architecture
legislation to eliminate barriers in, in New York, 591
of residential inst in Canada, 644
Arkansas
rehabilitation research in, 542
Art
in recreational program for MRs, 665
Asphyxia (See Anoxia)
Assessment (See specific areas; Testing)
Ataxia
Friedreich's, diabetes association w/, 260
telangiectasia,
agammaglobulinemia and, 129
in association w/ gastric adenocarcinoma, 210
physical therapy for, 261
"At risk" infant (See Infant)
Attitude
inadequacy feelings and self-concept, 407
of MR, toward self, 410
of normals toward EMRs, 459
public, toward rehabilitation, 564
Audiometry (See Hearing)
Australia
lead poisoning in children in, 131
programing for MR in, 586
Autism/Non-verbal child
aspects of, 416
behavior modification in treatment of, 535
biological studies of, 419
diagnosis of, 415
early infantile, 417
echolalia in, 418
etiology of, treatment philosophy and, 536
language and social development in child w/, treatment in relation to, 533, 534
parent personality characteristics and, 532, 692
spec ed for, 470
Autonomic nervous system
disorders of, eye and sweat gland aspects of, 245

Bacteria
meningitis fr, mortality, etiology, and treatment of, 92
Neisseria catarrhalis, meningitis and purpura fulminans fr, 93
Batten's disease (See Lipoidosis, cerebral)
Battered Child Syndrome (See Child; Infant)
Behavior
adaptive,
classification of, for SMR, 405
factorial dimensions of, 437
in inst, factorial study, 412
as measure of psychiatric impairment, 436
antisocial, as psychotic symptom in MR, 269
of BI children, 136
CNS pathology and, 356
coping, in inst MRs, 412
curiosity, stimulus novelty and complexity, 394
dextroamphetamine effect on, 571
disorder,
in adolescent MR hemophiliac, case study of therapy of, 568
treatment of, 529
hemispheractomy for, long-term sequelae of, 279
hyperactive, etiology, prognosis, and treatment of, 138
inadequacy feelings and, 407
modification,
in autism treatment, 535
by older inst patients to train younger patients, 653, 654
operant conditioning and social relations in relation to, 522
by parent, 680, 681, 682, 686
principles and techniques, 526
preferences, lateral and choice-sequences, 397
psychology and, 5
self-mutilation, treatment of, 525
sexual, puberty in female, 353

toileting, training of PMR in, 527
visually discriminated, by blind MR, reinforcement and, 531
Bibliography
on camping, 669
on Russian MRs, 33
Bicarbonate
metabolism by kidney, in Lowe's syndrome, 239
Bilirubin (See also Hyperbilirubinemia)
metabolism,
in nonhemolytic jaundice, 128
in pregnancy, placental transfer of, 127
phenylsulfonphthalein-binding by serum in relation to, 120
Biological rhythm
development and, 351
seasonal,
in hyperbilirubinemia incidence in California, 123
in sex chromosome anomaly incidence in infants, 328
Birth defects (See Infant)
Birth-weight (See Infant)
Blind MR
visually discriminated behavior in, reinforcement in relation to, 531
Blood (See also Erythroblastosis fetalis; Rh incompatibility)
acidity and electrolytes in, in hydrocephalus, 214
bilirubin in, determination of, 121
cells,
galactose determination in, 175
glycogen and alkaline phosphatase in neutrophiles in Down's syndrome, 309
red, acetylcholinesterase in, as criterion for exchange transfusion in ABO incompatibility, 119
storage material in, in mucopolysaccharidoses, 200
cholesterol in, in MR, 340
clotting, increased, in homocystinuria, 165
Coombs testing of, screening for hemolytic disease of the newborn by, 116
groups, ABO, hemolytic disease and, criterion for exchange transfusion in, 119
maternal, ingestion by fetus, neonatal hyperbilirubinemia fr, 124
Blood vessels
carotid sinus hypersensitivity of, in sudden unexplained infant death, 346
hypertrophic subaortic stenosis and persistent left superior vena cava into left atrium in ring E chromosome anomaly, 294
incidence of anomalies of, 344
saphenous, as graft in treatment of hydrocephalus in India, 216
umbilical artery,
congenital anomalies and, 246
infant anomaly and perinatal mortality in relation to, 59
Bogaert's disease (See Leukoencephalitis)
Bourneville's disease (See Sclerosis, tuberous)
Brain (See also related headings)
bilirubin in, in nonhemolytic jaundice, 128
development, malnutrition in infancy and, 359
disorders, physical therapy for, 695
hemorrhage, in meningomyelocele, laryngeal stridor fr, 221
lipids in, in Down's syndrome, 310
maturation of, in small-for-dates infant, 251
nucleic acids in, prenatal malnutrition effect on, 206
thrombosis, in homocystinuria, 165
tumor, radiation therapy for, 209
Brain injury (See also Cerebral Palsy; Epilepsy; & Education, special)
acute and chronic, prognosis for, 136
assessment of, 425
Gibson Spiral Maze for, 426
performance patterns, 428
fr head trauma, 139
fr hypoglycemia associated w/ erythroblastosis fetalis, 108
fr insulinoma in childhood, 211
perinatal, long term follow up of infants w/, 135

Calcium
deficiency, in convulsion etiology in neonates, 278
California
child development traveling clinic in, 618
mental health facilities in, directory of, 658
rubella epidemic in, 70
seasonal variation in hyperbilirubinemia in, 123
Canada
congenital anomaly incidence in, hospital insurance records and, 39
Cancer
skin, in xeroderma pigmentosum, 262
stomach, in ataxia telangiectasia, 210
Cardiac disorder (See under Heart)
Central nervous system (See also Autonomic nervous system; Brain)
Herpes simplex in etiology of malformations of, 88
malformations of, congenital, 250
pathology of, mental development and, 356
Cerebral gigantism (See Gigantism)
Cerebral lipoidosis (See Lipoidosis, cerebral)
Cerebral palsy (See also Brain injury)
counseling of parents of, 688
hip development in, 350
hip dislocation in, surgical reduction of, 148
research on, in West Germany, 29

therapy for feeding and posture disorders in, 695
velopharyngeal dysfunction in, treatment of, 149
Cerebral spinal fluid
acidity and electrolytes in, in hydrocephalus, 214
echovirus isolation fr, in meningoencephalitis, 90
folic acid in, in ep and neurological disorders, 283
protein abnormalities in, in neurological disorders, 43
Child
abuse, diagnosis and legal aspects of, 140
antibodies to rubella in, 77
burns in, neurological disorders after, 150
drawings, development and meaning of, 434
handicapped, family adjustment to, 691
lead poisoning in Australian, 131
MR, psychosis in, 266
performance in relation to neonatal abnormality, 352
Chimpanzee
kuru in, fr transmission by human brain suspensions, 263
Chloride
in blood and cerebrospinal fluid in hydrocephalus, 214
Chlormethiazole
as anesthesia in parturition, neonate depression by, 142
Cholesterol
in blood in MR, 340
Chromosomal anomaly (See also Genetics; specific disorders)
autosomy, G, congenital anomalies and, 295
cell culturing methods for determination of, 329
congenital malformation and, 326, 334
fr cyclamates, 337
deletion, 46, XY, 18p-, case study, 293
dermatoglyphics and, 42
double autosomal trisomy and mosaicism, in one individual, 290
etiology, fr drugs, 336
in hydatidiform abortuses, 338
mosaicism,
dermatoglyphics and, 327
46,XX/47,XX,C+, disappearance of the abnormal cell line, 286
46,XX/47,XX,G+, case study, 296
46,XY/45,X, gonadoblastoma in, 318
fr mutation, 331
ring,
E, heart blood vessel anomalies associated w/, 294
46,XYCr, MR and congenital malformations in relation to, 287
sex,
immunoglobulins and, 321
in infants, seasonal variation of, 328
mosaicism, 45,X/47,XXX, gonadal dysgenesis discordancy in monozygotic twins, 319
XXXY, clinical aspects of, 322
XYY, clinical aspects of, 323, 324
syndactyly and, 325
translocation,
B-group, congenital anomalies in, 285
C/15, congenital malformations and, 288
D/D,
Down's syndrome in association w/, 316
recurrent abortion fr, 291
t(2q+;Cp-), congenital anomalies in, 284
trisomy,
13, scalp defects in, 289
13-15, 17-18, and 22, symptoms of, in 2 boys, 297
18, Wilm's tumor and, 292
Church (See Religion)
Classification
of infantile encephalopathy, 248
Cognition (See also Creativity; Perception)
drugs and stimulation of, 372
in learning, familial MR and, 264
of MRs, in USSR, 32
Communication (See also Language; Speech)
development of, 471
Community programs (See also Programing)
in Australia, 586
camping as
bibliography on, 669
social relations of EMRs and, 667
social relations of TMRs and, 668
child development traveling clinic as, 618
continuum of, in United States, 597
day care,
evaluation of child in, 606
for older mongoloids, 605
in foreign countries, problems of, 598
foster families, 607
foster grandparent, 619
hostels, inst patient preparation for, 637
in Illinois, 10
basic considerations in, 599
in Massachusetts, 590
for MR diagnosis and follow-up services, 37
for multiply handicapped, in New York, 614
parent-care pavilion as, 604
in programing for the MR, 582
for public health, 45
MR prevention and, 585
recreation, 672, 673
religious, 622, 627
for rural MRs, 600, 601, 602, 603
in Wisconsin, 616
in Scotland, 617
screening programs, World Health Organization recommendations for, 153
social, for mildly MR, 615
for transportation of MRs, 611
for vocational rehabilitation,
in Memphis (Tennessee), 613
sheltered employment of older mongoloids, 563

work-study, for EMRs, 543, 544, 545, 546
volunteer,
for MR living at home, 609
in residential inst programs, 640
Conditioning (See Learning)
Congenital anomaly (See under Infant)
Connecticut
sheltered workshop project in, 560, 561
Consanguinity (See also Genetics)
genetic load fr remote, 330
in glucose-galactose malabsorption, 171
in syndrome of malformed ears and conductive hearing loss, 243
Convulsion (See also Epilepsy)
drug treatment of, methylphenidate effect on, 137
folic acid in cerebrospinal fluid in, 283
myoclonic, of infants, etiology and prognosis of, 280
in newborns, hypocalcemia in etiology of, 278
Counseling
of EMRs, 567
family, 689, 690
by physician, 693, 694
psychologist role in, 696
genetic, advances in, 335
group,
w/ adolescents in MR inst, 566
of mothers of children in spec ed classes, 687
of parents,
of CP children, 688
of MR child, 678, 685
school, for slow learner, 697
Craniosynostosis
treatment of, 228
Creatinine
in amniotic fluid, fetus gestational age and, 54, 55
Cretinism (See Hypothyroidism)
Crime
as psychotic act in MR, 269
Culturally deprived (See Sociocultural factors)
Cyclamate
chromosome aberrations fr, 337
Cystic fibrosis
Down's syndrome and, 313

Day care (See Community Programs)
Deaf MR (See also Hearing)
hearing aid orientation program for, 577
teacher qualifications for, 698
De Lange syndrome
in adult male, case report, 236
Dentistry
for the MR, 575
automatic toothbrush and, 576
Deoxyribonucleic acid
repair inability in xeroderma pigmentosum, 262
Deprivation (See also Sociocultural factors)
emotional, in failure-to-thrive syndrome, 277
sensory, research on, 27
Dermatoglyphics
in chromosome anomaly syndrome diagnosis, 42
in chromosomal mosaicism, 327
Development (See also specific areas of interest)
art ability in SMR and, 408
biological rhythms and, 351
body-image, represented through drawings, 434
child, advances in, 13
CNS pathology and, 356
dysharmonic, in psychotic MRs, 270
language, 471, 472
mental,
attention span c/w normals, 364
judging subjective phenomena, thresholds for, 388
of left-right concept, research review, 367
malnutrition and, 359
neurological organization and reading, 403
Piaget's theory of conservation, 357
preference,
lateral and choice-sequence, 397
research review, 366
serial reproduction ability, 363
verbal learning and memory, trends in, 369
mental and physical,
congenital heart disease and, 241
malnutrition effect on, 203, 204
motor,
mental ability, reaction time and, 383
proficiency and intelligence, 358
reaction time, research review, 370
neurological, in DiGeorge syndrome, 237
number concept, 390
perceptual-motor, reaction-time and response variability, 398
physical,
of hip, in CPs, 350
low birth-weight and postnatal, 349
psychological, research in, 4
psychological and social, in Down's syndrome, 305
psychomotor, physical therapy effect on, 573, 574
sexual, puberty in female, 353
social,
classification system for SMR, 405
inter-human relations, need for, 406
programing for, 438
Diabetes
ataxia (Friedreich's) associated w/, 260
insulin-binding in MR w/, 207
Diagnosis (See Mental retardation; specific disorders; specific techniques)
Diet (See also Nutrition)

in galactosemia treatment, 172
intelligence in relation to, 194
in homocystinuria treatment, 164
in treatment of amino acid inborn metabolic errors, 155
DiGeorge syndrome
w/ delayed neurological development, case report, 237
Digit
syndactyly, chromosome anomalies and, 325
in tricho-rhino-phalangeal malformation syndrome, 238
Directory
of California mental health facilities, 658
Disease (See specific disease)
Donohue's syndrome
case report, 247
Down's syndrome
cerebral lipids in, 310
chromosomal translocation D/D associated w/, 316
conference on, in Wisconsin, 302
congenital duodenal obstruction in, 244
cystic fibrosis and, 313
day care center for older Ss w/, 605
educational services for, 451
genetics of, 303
grandmaternal age and, 307
heart disorder in, 57
immunology and, 308
incidence of, effect of maternal age on, in Australia, 306
increased leukocyte glycogen and alkaline phosphatase in, 309
inst of older patient w/, 649
intestinal submicroscopic changes in, 299
Klinefelter's syndrome in association w/, 314
liver abnormalities in, 301
medical problems in, 304
mosaicism in, 296, 317
partial, in partial trisomy G, 315
psychological and social development in, 305
research and advances in, 298
sheltered employment for subject w/, community programs for, 563
stomach submicroscopic changes in, 300
thyroid auto-antibodies in, 311
thyroid gland function in, 312
Drugs (See also Drug treatment; specific compounds)
cognition stimulation by, 372
Drug treatment
of amebic meningoencephalitis, 94
of bacterial meningitis, 92
of behavior in MRs, 571
chromosomal aberrations fr, 336
of convulsions, methylphenidate effect on, 137
of ep, w/ nitrazepam, 282
of *Herpes simplex* encephalitis, 100
of *Herpes simplex* infection in newborn, 87
of hyperbilirubinemia (nonhemolytic), 125
of meningitis, w/ steroids, 89
of MR, 570
Dystrophy
muscular (Duchenne), intelligence and the gene for, 361

Ears (See also Hearing)
malformed, in syndrome w/ conductive hearing loss, 243
Education (See also Education, special)
achievement, prediction fr psychological testing, 430
assessment for, visual-perceptual-motor dysfunction and, 439
dropouts, causes of, 461
interdisciplinary, for students training in MR, 699
school failure in depressive conditions, 462
socioeconomic factors in, 272, 273, 274
Education, special (See also Rehabilitation, vocational)
achievement,
assessment of, 517, 518
lack of, 462
reading, prediction of, 464
social class and, 463
in adjustment of adolescent EMR, 523
administration, transferring to regular classes, 460
art, 499
arts and crafts, 498, 500, 510, 512, 516
for autistic children, 470
citizenship, 487
counseling, 567
of slow learners, 697
for mothers of children, 687
curriculum and methodology, 442, 443
dance, 491, 492
for deaf, 495
for deaf MR, teacher qualifications and, 698
for Down's syndrome subjects, 451
drama, 481, 482
driver education, 485
for EMR, 440, 485, 538, 543
field trips, 514
Headstart, 497
health, 482, 509, 515
instructional aids, 519
Itard, Seguin, and Montessori methods, 441
language, 471, 472, 505
language arts, 473, 477
learning center concept in, 610
for learning disorders, 465
mathematics,
game, 479
performance and instruction problems, 480
problems and trends, 478
music, 495, 496
nursery school, 448
operant conditioning in, 468, 469, 470
opportunity class in, for MR, 612
patriotism, 486

pedagogic literature, 520
pedagogic principles, 452, 453, 454
peer attitudes in, 459
perception training, 506
personal-social skills, assessment of, 518
physical education, 493
teaching aids, 489, 490
tests and awards, 488
for physically handicapped, 456
for PMRs, 469
preschool, 494, 497, 498
prevocational, 466, 508
principles and policies, 445
problems in, 455
programed instruction in, 450
programing, 582
in Oregon, 587
resource guide for, 583
in United States, 588, 589
reading, 474, 476
neurological organization and, 403
retardation, 474, 475
recommendations for, 447
religion, 501, 502, 503
research, review of, 458
science, 484
self-improvement, 507
for slow learners, 16, 444, 445, 450, 457, 473, 474, 475, 478, 483, 484
motivation factors in relation to, 271
social studies, 466, 483, 511, 513
social training, 467
spelling, 475
teaching,
patterns in, 446
practical approach, 449
theory in, 452, 453
time telling, 504
for TMR, 448, 488, 489, 490, 495, 506, 507, 509, 510
in USSR, history of, 31
volunteer aides in, 708
work-study programs, 540, 541, 543
for EMRs, 538
need for social conditioning skills in, 539

Electroencephalography
in Krabbe's disease, 257

Embryo
teratology of, research on, 341
virus effect on, 99

Emotional disturbance/Emotionally disturbed (See also Autism; Psychiatric disorder)
assessment, performance patterns, 428
behavior modification in, parent role in, 686
school failure, 462

Encephalitis
fr amebas, 91, 94
fr echovirus 9, cerebrospinal fluid in diagnosis of, 90
fr *Herpes simplex*, idoxuridine in treatment of, 100
fr mumps, in Israel, 84
pan-,
subacute sclerosing,
clinical aspects and epidemiology of, 98
measles virus in etiology of, 83
fr virus, clinical aspects and classification of, 102

Encephalomyelitis
allergic,
amino acid sequence of protein causing, 96
demyelinating diseases in relation to, 95

Encephalomyelopathy
infantile, problems in, 248

Endocrine system
in hydrocephalus, 217

England (See also Great Britain)
community programs for rural MR in, 603
insts in, changes in patient care in, 631

Environment
in MR etiology, 46

Environmental deprivation (See Deprivation; Sociocultural factors; Socioeconomic factors)

Enzyme (See also specific Enzymes)
in galactosemia, screening for heterozygotes in relation to, 197

Epidemiology (See Mental retardation; specific disease)

Epilepsy (See also Brain injury; Convulsions)
aspects of, 281
folic acid in cerebrospinal fluid in, 283
hemispherectomy for treatment of, long-term sequelae of, 279
myoclonic,
drug treatment of, 282
of infants, etiology and prognosis of, 280
rehabilitation and, factors in, 565

Erythroblastosis fetalis (See also Rh incompatibility)
hypoglycemia associated w/, 122
BI fr, 108

Erythrocytes (See Blood)

Estriol
in urine in prolonged pregnancy, 63

Ethics
of congenitally handicapped neonate care, 23

Ethnicity (See Sociocultural factors)

Eye/Eye disorders
color vision,
assessment of, 432
lens,
abnormalities fr lysergic acid diethylamide, 345
disorder of,
in galactosemia, 174
pupillotonia hyporeflexia of,
in new syndrome w/ segmental hypohidrosis, 245
in xeroderma pigmentosum, 262

Face
growths on, neurological disease and, 242
paralysis of, associated w/ congenital heart disease, 240
peculiar, in Potter's syndrome, 235
in tricho-rhino-phalangeal snydrome, 238
Family (See also Parent/Parental)
of abused children, 140
adjustment,
to handicapped child, 677, 691
to learning disorder child, 413
counseling of, 689, 690
by physician, 693, 694
grandmother, age of, Down's syndrome and, 307
in residential facility program, 683
siblings of handicapped child, psychiatric disorders in, 276
in treatment of autistic child, 533, 534
Fetus/Fetal (See also Teratology)
acid-base equilibrium of blood of, 53, 61
age of, creatinine in amniotic fluid in determination of, 54, 55
blood exchange in, for Rh imcompatibility, 110, 111
complications of, 112, 114
disorder of, amniotic fluid in diagnosis of, 41
hydrocephalus diagnosis in, 218
infection of, in maternal rubella, serological diagnosis and, 72
ingestion of maternal blood by, neonatal hyperbilirubinemia fr, 124
maternal arsenic poisoning effect on, 133
maternal smoking effect on, 134
mortality and morbidity of,
in placenta previa, 147
in repeat cesarean sections, 145
paroxysmal tachycardia of heart of, prognosis of, 141
Fibroblasts
in metabolic disorder diagnosis, 56
Finance (See Legislation; Programing)
Folic acid
in cerebrospinal fluid, in ep and neurological disorders, 283
Foster grandparent (See Community programs)
Friedreich's ataxia (See Ataxia)
Fucosidosis
case report, 160

Galactitol
metabolism in galactosemia, 174, 193
Galactokinase
deficiency, galactosemia fr, 186
Galactosemia
cell growth in, synergism by orotic aciduria cells, 190
clinical aspects of, 184
Duarte variant of, genetics of, 187
etiology, genetics, prognosis, and treatment of, 172
fr galactokinase deficiency, 186
galactose determination in erythrocytes in, 175
galactose metabolism in variants of, 189
galactose oxidation in, 176
galactose-1-phosphate uridyl transferase in,
determination in, 177, 178, 179, 180, 181, 182
in fibroblasts fr, 191
in red and white blood cells in, 183
in variants of, 188
genetics of, 185
history of, 173
intelligence in, diet effect on, 194
metabolism of galactitol in, 193
pathogenesis in, 174
screening methods for, 195, 196
for heterozygotes w/, 197
uridine diphosphoglucose-4-epimerase metabolism in, 192
Galactose-1-phosphate uridyl transferase
determination in galactosemia, 177, 178, 179, 180, 181, 182
in fibroblasts fr galactosemic Ss, 191
in galactosemia variants, 188
in red and white blood cells in galactosemia, 183
Gargoylism (See Mucopolysaccharidoses)
Genetics (See also Chromosomal anomaly; Consanguinity; Counseling; specific disorder)
advances in, 335
chromosome loss and intelligence, 362
cyto-,
analysis in postmortem leukocytes, 44
of galactosemia, 172, 185
Duarte variant, 187
genetic load,
consanguinity in relation to, 330
varieties of, 333
of glucose-galactose malabsorption, 171
medical, 331, 332
in MR etiology, 46, 52
muscular dystrophy (Duchenne) and intelligence, 361
in neurological disorders fr metabolism disorders, 157, 158
of Rh incompatibility, mathematical model for, 126
Germany
West,
MR association in, sociology of, 30
research on CP and physical handicaps in, 29
spec ed in, recommendations for, 447
Gigantism
case report, 202
specific muscle weakness and speech abnormalities in, 223
Globulin
γ-,
absence of, ataxia telangiectasia and, 129
anti-D, in protection against Rh hemolytic disease, 106, 107, 109

anti-,
in hemolytic disease of newborn
screening, 116
immuno-,
in sex chromosome anomalies, 321
Glucose
tolerance, infants fr mothers w/
decreased, 254
Glycogen
in leukocytes in Down's syndrome, 309
Gonads
dysgenesis, in sex chromosome mosaicism,
discordancy of, in monozygotic twins, 319
tumor of, in 46,XY/45,X mosaicism, 318
Great Britian (See also specific country)
perinatal and infant mortality rates
in, 58
Greenfield's disease (See Leukodystrophy)
Growth
retardation,
in child, maternal X-irradiation in
relation to, 151
in congenital rubella, 71
Guardianship (See Protective services)
Guidance (See Counseling)

Hair
abnormalities, in new syndrome, 238
Halothane
as teratogenic agent, 348
Head
congenital malformation of, 343
Health facility (See also Community Program;
Hospital)
services of, 45
Hearing (See also Ear)
assessment,
GSR audiometry, 435
review of, 354
conductive loss of, in syndrome w/
malformed low-set ears, 243
judging auditory stimuli, relative
thresholds for, 388
Heart/Heart disorder
congenital defects, associated w/ facial
paresis, 240
congenital disorders of, MR and, 241
disorder, in Down's syndrome, 57
incidence of anomalies of, 344
paroxysmal tachycardia in fetal,
prognosis of, 141
Hemolytic disease (See Blood;
Erythroblastosis fetalis; Rh
incompatibility)
ABO, exchange transfusion for,
criterion for, 119
fr anti-Lan antibody in newborn, 115
bilirubin determination in blood in, 121
hypoglycemia associated w/, 122
of newborn,
prognosis in, amniotic fluid in
relation to, 117, 118
screening for, 116
phenolsulfonphthalein-binding capacity
of serum in relation to, 120
Herpes simplex (See Virus)
Histidinemia
skin test for detection of, 166
Homocystinuria
cerebral thrombosis in, 165
pyridoxine in dietary treatment of, 164
Hormones (See also Endocrine system;
specific hormones)
metabolism in the Prader-Willi syndrome,
163
thyroid gland regulating, in Down's
syndrome, 312
Hospital (See also Health facility)
improvement project,
half-way cottages as, 643
programing for SMR and PMR adults in
relation to, 641
insurance records, in Canada,
congenital anomaly incidence and, 39
parent-care facility for, 604
Hospital improvement project
half-way cottages as, 643
programing for MR adults in, 641
Hostel (See Community program)
Hyaline membrane disease (See Respiratory
distress syndrome)
Hydranencephaly
case report, 227
differential diagnosis of, 226
Hydrocephaly
acidity and electrolytes in blood and
cerebrospinal fluid in, 214
calcified thrombus of the superior vena
cava in ventriculoatrial shunt for, 220
choroid plexectomy for treatment of, 215
diagnosis in fetus, 218
endocrine system functions in, 217
Holter valve patency in, valvulography
for testing of, 219
hydranencephaly, differential diagnosis
fr, 226
mortality and morbidity in infantile, 213
treatment of, 212
by saphenous vein graft, in India, 216
Hyperbilirubinemia (See also
Erythroblastosis fetalis; Jaundice; and
related headings)
bilirubin determination in blood in, 121
drug treatment of nonhemolytic, 125
in hypothyroidism, exchange transfusion
for, 201
fr ingestion of maternal blood, 124
phenolsulfonphthalein-binding capacity
of serum in relation to, 120
seasonal variation in, 123
Hyperglycinemia
nonketotic, case report, 169
Hyperkinesis (See Behavior; Brain injury)
Hypermethioninemia
transient, in infants, 167
Hypertelorism
w/ Waardenburg's syndrome,
233

Hyperuricemia (See Lesch-Nyhan syndrome; Uric acid)
Hypocalcemia
in convulsion etiology in infants, 278
Hypoglycemia
associated w/ hemolytic disease of newborn, 122
BI fr, erythroblastosis fetalis in etiology of, 108
fr insulinoma, BI fr, 211
in small-for-dates infant, 253
Hypohidrosis
in new syndrome w/ pupillotonia hyporeflexia, 245
Hypothermia
in newborn anoxia treatment, 143
Hypothyroidism
jaundice in, exchange transfusion for, 201
Hypotonia-hypomentia-hypogonadism-obesity syndrome (See Prader-Willi syndrome)
Hypoxia (See Anoxia)

Icterus neonatorum (See Hyperbilirubinemia)
Idoxuridine
in treatment of *Herpes simplex* encephalitis, 87, 100
Illinois
community services development in, 599
legislative manual for MR associations in, 592
programs and services for the MR in, 10, 581
Immunology (See also Antibody)
of ataxia telangiectasia, 129
of autoimmune demyelinating disorders fr viral infections, 105
of congenital rubella, 69, 71, 72, 73, 74, 77, 78
Down's syndrome and, 308, 311
of progressive multifocal leukoencephalopathy and lymphosarcoma, 130
Incidence & prevalance (See Mental retardation; specific disease)
India
hydrocephalus treatment by saphenous vein grafting in, 216
MR in, 9
Infant
abuse,
diagnosis and legal aspects of, 140
parental attitude and, 684
birth-weight,
low,
MR and, poverty in relation to, 51
physical development and, 349
weight gain in pregnancy and, 252
congenital infection of,
w/ cytomegalovirus, 66, 67
immunology of, 74
w/ rubella,
cellular viremia in, 73
growth retardation in, 71
maternal rubella and, 72
in nonepidemic periods, 69
congenital malformations in, 250
in Canada, 39
fr chromosome anomalies, 284, 285, 286, 287, 288, 289, 290, 292, 293, 294, 295, 297, 326, 334
discordancy for, in twins, 342
duodenal atresia and associated malformations, 244
of head, 343
fr *Herpes simplex*, 88
management of, ethics of, 23
in relatives of oral cleft patients, 249
single umbilical artery and, 59, 246
fr viral infection in pregnancy, 103, 104
malnutrition and brain growth, 359
maternal cytomegalovirus infection and, 68
mortality,
in Great Britain, 58
mortality and morbidity,
in midforceps delivery, 146
fr mothers w/ decreased glucose tolerance, 254
myoclonic encephalopathy of, 280
newborn,
abnormalities in, and sex differences in performance, 352
anoxia of, treatment w/ hypothermia and positive pressure ventilation, 143
"at risk."
amniotic fluid in diagnosis of, 41
semiobjective grading system for determination of, 60
BI in, fr birth trauma, prognosis for, 135
bilirubin in, phenylsulfonphthalein-binding capacity of serum in relation to, 120
biological rhythms, 351
depressed, fr maternal anesthesia, 142
exchange transfusion complications in, 113
failure-to-thrive, emotional deprivation in etiology of, 277
hemolytic disorder in,
fr anti-Lan antibody, 115
screening for, 116
maternal smoking in pregnancy effect on, 134
mortality and morbidity of, in placenta previa, 147
paroxysmal tachycardia and, 141
skull fractures and retinal hemorrhage in, fr vacuum extraction, 144
sex chromosome anomalies in,
seasonal rhythm of, 328
"small-for-dates,"
brain maturation in, 251
cold stress effect on, 255
hypoglycemia in, 253
sudden unexplained death of, 347
carotid sinus hypersensitivity in, 346
Infantile autism (See Autism)

Infection (See also Bacteria; Virus; and specific headings)
in etiology of infantile myoclonic encephalopathy, 280
in MR etiology, 46
Information system
in MR, data banks for, 17
Institutions for MR (See Residential care and services)
Insulin
-binding in MR diabetic, 207
Intelligence (See also Cognition; Tests)
assessment, 422, 423, 427, 429
for adoption, 424
in predicting achievement, 430
research review, 421
curiosity behavior and, 394
in galactosemia, diet effect on, 194
growth and decline, research review, 373
learning, socioeconomic status and, 360
low, social motivation in relation to, 275
motor proficiency and, 358
muscular dystrophy (Duchenne) and, 361
Piaget's theory of conservation, 357
psychology and, 374
reaction time,
and motor abilities, 383
c/w normals, 385
serial reproduction ability, 363
Turner's syndrome, chromosomal loss and, 362
Intestines
congenital duodenal obstruction of, factors associated w/, 244
submicroscopic changes in, in Down's syndrome, 229
Israel
mumps meningoencephalitis in, 84

Kernicterus (See Hyperbilirubinemia)
Kidney/Kidney disorder
bicarbonate metabolism by, in Lowe's syndrome, 239
Kleeblattschadel syndrome
case report, 234
Klinefelter's syndrome
Down's syndrome in association w/, 314
Kuru
transmission to chimpanzees fr human brain suspensions, 263
Kwashiorkor (See Nutrition)

Language (See also Communication; Speech)
in autism, 416
echolalia, 418
treatment in relation to, 533, 534
development of, 472
delayed, 402
in echolalic child, operant conditioning and, 530
in inst MR, program for, 656, 657
positive reinforcement in, 524
Stroop Test and, 401
disorder, 420
aphasia,
differentiated fr, 415
disorganization pattern, 404
Larynx
stridor, in meningomyelocele, cerebral hemorrhage in relation to, 221
Law (See Legislation/Law)
Lead poisoning
in Australian children, 131
nerve ultrastructural changes in, 132
Learning (See also Cognition)
ability, 355
test validity of, 431
associative,
material associative strength and mental age, 399
role in cultural familial MR, 264
attention and inhibition in, research review, 384
conditioning,
avoidance, in treatment of self-distruction in MR children, 525
classical, aquisition and differential, 376
differential, 378
operant,
behavior modification and, 522, 526
in inst for MR, 655
in language development, 530
in spec ed, 468, 469
review of, 375
discrimination, 380
verbalization, relevant and irrelevant, 382
vicarious, 380
disorders,
behavioral and emotional aspects, in child and family, 413
learning center concept in spec ed for, 610
legislation and, 596
malnutrition effect on, 203
memory,
mediator utilization, 392
processes c/w normal, research review, 371
short-term, 389
intertrial-interval duration, effects on, 381
review of research and theory, 368
neuropathology and, 356
paired-associate,
backward associations in, 393
mediation and associative chains, 400
reaction time and, research review, 370
reinforcement in,
positive, speech training and, 524
reward and punishment, effects of, 377
in social adjustment of inst MR, 521

visually discriminated behavior in blind MR in relation to, 531
research in MR, 1, 374
slow,
aspects of, 16
counseling and, 697
motivation factors in relation to, 271
socioeconomic factors in, 272, 273, 274
socioeconomic status and, 360
c/w normal, 387
success expectancy and, c/w middle and lower class, 386
of toileting behavior, by PMRs, auditory signal generators in, 527
verbal,
memory and, research review, 369
secondary cues, c/w normals, 395
Legislation/Law
architectural barrier, in New York, 591
for battered child syndrome, suggestion for, 140
in Illinois, manual for MR associations in relation to, 592
Learning Disabilities Act of 1969, 596
provisions for the MR, 593, 595
in Canada, 594
psychosis in MR in relation to, 269
Lesch-Nyhan syndrome
case report, 162
delineation and history of, 161
Leukocytes
cytogenetical analysis of, after death, 44
Leukodystrophy (See also specific disease)
globoid cell, peripheral nerve pathology in, 258
metachromatic, diagnosis of, urine composition in, 256
Leukoencephalitis
subacute sclerosing, clinical aspects and differential diagnosis of, 97
Leukoencephalopathy
progressive multifocal, w/ lymphosarcoma, immunological aspects of, 130
Lipid
in brain in Down's syndrome, 310
Lipochondrodystrophy (See Mucopolysaccharidoses)
Lipoidosis, cerebral
diagnosis of, urine composition in, 256
Tay-Sachs disease,
β-D-N-acetylhexosaminidase absence in organs in, 199
nerve ultrastructure in, 198
Liver
in Down's syndrome, 301
in galactosemia, 174
Louis-Bar syndrome (See Ataxia)
Lowe's syndrome (See Oculo-cerebro-renal syndrome)
Lymphosarcoma
w/ progressive multifocal leukoencephalopathy, immunological aspects of, 130
Lysergic acid diethylamide
chromosome aberration fr, 336
eye lens abnormalities fr, 345

Malformation, congenital (See Infant)
Malnutrition (See Nutrition)
Manpower (See Personnel)
Massachusetts
programing for the MR in, 590
Maturation (See Development)
Measles (See Rubella; Viruses)
Medicine
psychosis in MR in relation to, 269
Meningitis
bacterial, mortality, etiology, and treatment of, 92
fr mumps virus, in Israel, 84
fr *Neisseria catarrhalis*, purpura fulminans in association w/, 93
steroids in treatment of, 89
Meningocele (See Hydrocephalus; Spina bifida)
Mental age (See Development)
Mental health
facilities,
directory of California, 658
Mental retardation, general
in animals, research on, 339
associations for, in West Germany, sociology of, 30
biological factors in, research on, 48
classification and terminology of, 18, 19
diagnosis, 34
and evaluation of, adult, 36
and follow-up in nonmetropolitan areas, 37
pediatrics and, 35
psychological, 422, 423
epidemiology of, 20, 21
etiology of, 49, 50, 51, 52
etiology, prevention, and treatment of, 46
familial, theory of, 264
federal programs in, 28
historical aspects of, 14
in India, 9
information retrieval in, 17
interdisciplinary student training in, 699
legal rights of, 620
natural history of MR inst patients, 645
overview of, 15
physical handicaps w/, problems of, 25
psychology and, 5
in USSR, 32
research in,
review on, 1, 2, 3, 4, 5, 6, 7, 8, 9, 18, 20, 24, 46, 49, 50, 51, 154, 264, 298, 339, 354, 365, 366, 367, 368, 369, 370, 371, 373, 384, 421, 458
sensory deprivation and, 27
services for, in the United States, 26
social psychiatry and, 11, 12, 24
treatment, by drugs, 570
in USSR,
bibliography on, 33

history of, 31
Metabolism
amino acid,
disorder of,
inborn,
biochemical aspects of, 156
dietary treatment of, 155
in newborn, 167
of galactose,
inborn error of, 172
history of, 173
of glucose and galactose,
inborn error of, 170, 171
inborn errors of, 154
cell culturing in diagnosis of, 56
neurological disorders fr, 157, 158
screening for, 153
of mucopolysaccharides,
inborn error of, fucosidosis as, 160
of propionic acid,
inborn error of, 168
Methylphenidate
effect on anticonvulsants in treatment of BI, 137
Microcephaly
congenital heart disease and MR in relation to, 241
Mongolism (See Down's syndrome)
Mortality
fr bacterial meningitis, 92
perinatal and infant, in Great Britain, 58
in residential care facilities, 22
decline over past decade, 645
single umbilical artery and, 59
sudden unexplained infant, 347
carotid sinus hypersensitivity and, 346
Mother (See Family; Parent/Parental; Parturition; Pregnancy; and other related headings)
Motivation
in education of the slow learner, 271
incentive, research review, 365
of the ungifted, 275
Motor development (See Development)
Mucopolysaccharidoses
blood cell intracellular storage material in, 200
fucosidosis as, 160
Multiply handicapped
community program for, in New York, 614
MR, problems of, 25
programing in education for, in United States 588, 589
Muscle/Muscle disorder
hypertonicity, in monosomy G, 295
in Prader-Willi syndrome, 231
weakness of specific, in cerebral gigantism, 223
Muscular dystrophy (See Dystrophy)
Music (See also Education, special)
in adjustment of MRs, 578
Mutation
chromosomal aberration fr, 331
disease patterns fr, 332
in genetic load varieties, 333
Myelomeningocele (See Spina bifida)
Neonate/Neonatal (See Infant)
Nerve
peripheral, pathology in Krabbe's disease, 258
in Tay-Sachs disease, 198
ultrastructure, in lead poisoning, 132
Netherlands
programing for the MR in, 584
Neurological disorders
after burns in children, 150
autoimmune, fr viral infections, 105
biochemical aspects of, 47
fr birth trauma, 135
cerebrospinal fluid proteins in diagnosis of, 43
demyelinating, allergic encephalomyelitis in relation to, 95
diagnosis of,
EEG in, 257
risk of early, 40
special techniques for, 38
facial cutaneous signs and, 242
folic acid in cerebrospinal fluid in, 283
fr inborn metabolic errors, 157, 158
fr slow animal viruses, 101
fr virus infection, 102
Neurology
MR and, research in, 6, 7, 8
Neuromuscular system (See Muscles; Nerves; Development)
New York
architectural barrier legislation in, 591
community program for multiply handicapped in, 614
Nitrazepam
in ep treatment, 282
Nose
abnormalities, in new syndrome, 238
Nucleic acids
in brain of newborn,
prenatal malnutrition effect on, 206
Nursing, profession of
in MR inst,
patient adjustment and, 634, 639
Nutrition
mal-,
child development and, socioeconomic factors in relation to, 204
learning and, 203
mental development and, 359
prenatal,
nucleic acids in brain, 206
socioeconomic factors in, 205
Obesity (See Development)
Occupational therapy
in rehabilitation of MRs, 548
Ocular disorder/infection
(See Eye)

Oculo-cerebro-renal syndrome (Lowe's syndrome)
bicarbonate metabolic disorder in, kidney malfunction in relation to, 239
Operant conditioning (See Learning)
Oregon
programing for MR in, 587
Orotic aciduria
cells fr, galactosemia cell growth synergism by, 190
Orthopedic aids (See Appliances)

Paralysis (See also Cerebral palsy)
infantile, hemispherectomy for, long-term sequelae of, 279
Parent/Parental (See also Family)
of abused children, 140
attitude toward children and, 684
adjustment of, professionals role in, 685
advice for female in puberty, 353
attitude toward MR child, 677
of autistic children,
personality of, 692
treatment philosophy and, 536
counseling of, 689, 690
w/ CP child, 688
group, 687
of emotional disturbed child,
behavior modification and, 686
in ethical decisions on congenitally deformed infants, 23
foster, for MR child, 607
mother,
age of, Down's syndrome incidence and, 306
behavior toward autistic child, 532
counseling need of, 678
on hospital care-by-parent unit, 679
of MR child,
behavior modification techniques for, 680, 681, 682
professional organizations and, 676
in patient care, 604
in residential facility program, 683
in social adjustment of adolescent EMRs, 523
Parturition (See also Pregnancy)
anesthesia in, neonate depression by, 142
cesarean section, fetal mortality and morbidity in, 145
disorders of,
in etiology of MR, poverty and, 51
pregnancy disorders and, 65
dystocia in, holocardius acephalus fetus as cause of, 225
midforceps delivery, infant morbidity in, 146
mortality,
rates in, in Great Britain, 58
single umbilical artery in relation to, 59
in placenta previa,
mortality and morbidity in, 147
risk factors in, semiobjective grading system in determination of, 60
vacuum extraction in, newborn injury fr, 144
Pathology
human, experimental teratology and, 344
Pediatrics
in care of behavior disturbance in adolescent MR, case study, 568
MR diagnosis and, 35
Perception (See also Cognition; Learning; and other related headings)
after-effect and age, MR, and schizophrenia, 391
disorder, educational evaluation and, 439
pattern reproduction, 396
perceptual motor,
reaction time and mental ability, 383
reaction time and response variability, 398
Peritonitis (See Intestines)
Perphenazine
chromosome aberrations fr, 336
Personality (See also Adjustment/personal-social; Behavior)
assessment, 433
characteristics,
of mother of autistic child, 532
of parents of autistic children, 692
disability type and, 409
moral sensitivity, 411
of MRs, in USSR, 32
physical activity interest,
rehabilitation in relation to, 551
Personnel (See also Manpower; and specific area of interest)
in MR inst, in-service training of, 642
Phenobarbital
in hyperbilirubinemia (nonhemolytic) treatment, 125
Phenosulfonphthalein
binding by blood in newborn, bilirubin in relation to, 120
Phenylketonuria (PKU)
in Switzerland, 159
Phosphatase
alkaline, increase in Down's syndrome, 309
Physical development (See Development)
Physically handicapped
education for, 456
Physical therapy
for ataxia telangiectasia, 261
for CPs with feeding and posture disorders, 695
developmental response to, 573, 574
passive reflex, beneficial results w/ SMRs, 572
Physician
in abused child recognition, 684
in ethical decisions on congenitally deformed infants, 23
in family counseling, 693, 694
learning disorder and role of, 413
Pituitary gland
in hydrocephalus, 217

injury, fr head trauma, 139
Placenta
abnormal, in etiology of holocardius acephalus fetus, 225
bilirubin transfer by, 127
previa, mortality and morbidity of, 147
Plumbism (See Lead poisoning)
Pneumonia
varicella, in pregnancy, 85
Pneumonencephalography (See Radiography)
Poisoning
arsenic, maternal, fetus response to, 133
lead, 131, 132
Potter's syndrome
clinical aspects of, 235
Poverty (See Socioeconomic factors)
Prader-Willi syndrome
adrenal gland metabolism in, 163
case report in siblings, 229
clinical characteristics of, 230
diagnosis and treatment of, 232
muscle untrastructure in, 231
Pregnancy (See also Infant; Parturition; Teratology; and other related headings)
bilirubin metabolism in, 127
cytomegalovirus infection in, infant prognosis and, 68
disorders,
in etiology of MR, socioeconomic factors and, 51
newborn prognosis in, 135
parturition disorders and, 65
malnutrition in, infant malnutrition and,poverty in relation to, 205
prolonged,
amniocentesis and, 64
incidence of, 62
urinary estriol excretion in, 63
radiation in,
dangers of, 152
growth retardation in child in relation to, 151
smoking during, effect on fetus and newborn, 134
varicella pneumonia in, 85
viral infection, congenital malformations fr, 103, 104
weight gain in, infant birth-weight in relation to, 252
Prematurity (See Infant)
Programing for MR (See also Community programs)
activities for SMRs, goals of, 580
activities programs and, 579
in Australia, 586
education, community, and agency concept in, 582
in Illinois, 581
in Massachusetts, 590
in Netherlands, 584
in Oregon, 587
in residential care inst, 629, 641
in rural areas, 600, 601, 602, 603
in spec ed,
resource guide for, 583
in the United States, 588, 589
Propionicacidemia
case report, 168
Protective services
guardianship, community programs for, 621
legal rights of disabled and disadvantaged, 620
legislation and, 593, 595,
in Canada, 594
recommendations for, 26
Protein
in cerebrospinal fluid, in neurological disorders, 43
encephalitogenic, amino acid sequence of, 96
Pseudoretardation
language development delayed, 402
Psychiatric disorders (See also Autism; Emotional disturbance/Emotionally disturbed)
in ep, rehabilitation and, 565
schizophrenia, spatial after-effects in, 391
in siblings of handicapped child, 276
treatment of, in MR, case study, 569
Psychiatry
child, advances in, 13
social, MR and, studies in, 11, 12
Psycholinguistic abilities (See Communication; Language; Speech)
Psychology
of behavior, 5
in counseling of family of MR child, 696
developmental, research in, 4
in rehabilitation, 551
social, of MR, 24
in social motivation of the ungifted, 275
Psychopathology (See Personality)
Psychosis
assessment of, 436
development of, 268
in MR, 266
classification of, 265
dysharmonic development and, 270
medico-legal aspects of, 269
psychometric testing for, 267
recreation for MR w/, 663
Psychotherapy
w/ adolescent inst MR, 566
Public health
community programs for, MR prevention and, 585
Pyridoxine
in homocystinuria dietary treatment, 164

Radiation
in brain tumor treatment, 209
danger to human gene pool, 152
in pregnancy, growth retardation and, 151
Radiography
of hip development in CPs, 350
valvulography, for Holter valve patency testing in hydrocephalus, 219

Recreation
arts and crafts in programs for MRs, 665
camping,
bibliography on, 669
social relations of EMRs in relation to, 667
for TMRs, 668
community programs for, 672, 673
farm club as, for handicapped children, 675
learning games, 674
for MRs, 660, 661, 662, 666, 671
identification of needs, strengths, and limitations in, 659
for PMRs, 664
for psychotic MRs, 663
in residential facilities, 661, 662
swimming, for TMRs, 670
Rehabilitation, vocational
of adult MR, 36
in ep, social adjustment and psychiatric disorders in relation to, 565
job success,
employer expectations and, 552, 553
as harvest worker, 557, 558
as meat cutter, 555
preparation of EMRs for, 537
shoe company devise design and, 556
social adjustment in, 539
in low socioeconomic urban areas, 547
motivation of inst MR adults, hedonistic study of, 554
occupational therapy in, 548
physical activity interest in relation to, 551
programs for,
assessment of effectiveness of, 550
in Memphis (Tennessee), 613
of psychiatrically disturbed MR, case study, 569
public attitude toward, 564
research in, in Arkansas, 542
sheltered workshop,
for adult TMRs, 560, 561
educational status of clients of, 562
for older mongoloids, 563
standards for, evolution of, 559
work placement success of MR females, 549
work-study programs for, 538, 540, 541, 543, 544, 545, 546
Religion
instruction of, 501, 502, 503
for the MR, 622, 623, 624, 625, 626, 627
Reproduction (See Infant; Parturition; Pregnancy)
Research, general
on CP and physical handicaps, in West Germany, 29
on learning in MR, 1, 2, 3
on MR in animals, 339
rehabilitation, in Arkansas, 542
on sensory deprivation and MR, 27
in the United States, 48
Residential care and services
admission to,
criteria for, 646, 648
emergency bases for, 647
age trends in, 650
behavior modification program in, 526
directory of inst for, in California, 658
in England, changes in, 631
family counseling in relation to, 690
foster grandparent program for, 619
group therapy w/ adolescents in, 566
half-way cottages for EMRs and, 643
improvement in patient care in, suggestions for, 638
individual and small group training in, 633
language development programs for, 656, 657
modular-type construction of units of, 644
for mongoloids (older), 649
mortality statistics in, 22
natural history of mortality and admissions to, 645
nursing role in, 634
nursing role in patient adjustment in, 639
operant conditioning use in, 655
parent participation in programs of, 683
patient care in, symposium on, 630
patient preparation for hostelization in relation to, 637
personnel,
attendants,
commuting practices and labor transfer potential, 707
child-care workers in,
selection and training of, 706
in-service training of, 642
programing of construction of,
in Massachusetts, 590
programing for MR in, 629
programing for PMR and SMR adults in, 641
recreation programs in, 661, 662
requirements for more effective treatment in, 636
residents of,
behavioral, social, and medical data fr Western United States, 628
separation data on, 651
social reinforcement in adjustment of, 521
work motivation of, hedonistic study of, 554
small community homes as alternate to, for adult MR, 608
social services in, 652
structured vs stimulating environment for patient care in, 632
therapeutic pyramids in, use of older residents as behavior therapists, 653, 654
unacceptable conditions in, expose of, 635
volunteer groups in programs of, 640
ward behaviors, 412
Respiratory distress syndrome
in newborn, fr maternal anesthesia, 142
Rh incompatibility (See also Blood)
immunization, prevention of,
anti-D γ-globulin in, 106, 107, 109

intrauterine fetal exchange transfusion
for, 110, 111
complications of, 112, 114
mathematical model for, 126
newborn exchange transfusion for,
complications of, 113
prognosis in, amniotic fluid in
relation to, 117, 118
Roentgenography (See Radiography)
Rubella
antibody to,
in blood serum, 78
in children, 77
congenital,
in California epidemic, 70
cellular viremia in, 73
growth retardation in, 71
immunology of, 74
congenital and maternal in nonepidemic
periods, 69
maternal, serological diagnosis and
fetal infection in relation to, 72
purification of, 76
vaccination for, target groups for, 75
vaccine for,
effectiveness of, 79, 81
in combinations w/ other viral
vaccines, 80

Schilder's disease (See Encephalitis;
Leukodystrophy)
Schizophrenia (See Psychiatric disorders)
Sclerosis
cerebral,
diagnosis of, 257
peripheral neuropathy in, 258
multiple,
allergic encephalomyelitis in
relation to, 95
etiology of, research on, 259
tuberous, tryptophan loading in, 208
Scotland (See also Great Britain)
community programs in, 617
congenital malformations in, 250
Screening programs (See specific areas of
interest)
Self-concept
drawings, representation of, 434
group membership and, 406
inadequacy feelings and, 407
of inst MRs, 410
Self-mutilation (See Behavior; Lesch-Nyhan
syndrome)
Sex
differences, abnormalities and
performance, 352
Sheltered workshops (See Rehabilitation,
vocational)
Skin
growths, in association w/ neurological
disease, 242
malignancies of, in xeroderma
pigmentosum, 262
purpura fulminans of, fr *Neiseria
catarrhalis*, 93
scalp defects, in trisomy 13, 289
Skull
anomalies, in Kleeblattschadel syndrome,
234
fractures, in newborn fr vacuum
extraction, 144
Smoking
in pregnancy, effect on newborn and
fetus, 134
Social relations (See also Adjustment/
personal-social)
camping programs and, for EMRs, 667
camping programs and, for TMRs, 668
development of, in autistic child,
treatment in relation to, 533, 534
group member, need for, 406
of inst MR,
social reinforcement and, 521
social services in relation to, 652
operant conditioning effect on, 521
programing for, 438
Sociocultural factors
academic achievement and, 463
deprivation, mental ability, 360
in learning, of black vs white
children, 273, 274
Socioeconomic factors
in cultural familial MR, 264
in epidemiology of MR, 20, 21
in infantile encephalopathy, 248
in learning, 272, 273, 274
MR c/w normals, 387
success expectancy and, 386
in malnutrition and child development, 204
mental ability and, 360
in MR etiology, 49, 50, 51
in prenatal malnutrition, 205
rehabilitation in relation to, 547
Sociology
of MR associations in West Germany, 30
Sodium
in blood and cerebrospinal fluid in
hydrocephalus, 214
Sotos syndrome (See Gigantism, cerebral)
Speech (See also Communication; Language;
Psycholinguistic abilities)
development of, in CP, prosthetic
appliance for, 149
in inst MR,
program for development of, 656, 657
training, positive reinforcement in, 524
Spina bifida
antibiotic spray in surgical closure
of, 222
cerebral hemorrhage in, laryngeal
stridor in relation to, 221
Steroid (See also specific compounds)
in meningitis treatment, 89
metabolism in the Prader-Willi syndrome,
163
Stomach
cancer of, in ataxia-telangiectasia,
210

submicroscopic changes in, in Down's syndrome, 300
Student work experience and training (SWEAT)
interdisciplinary training in, 699
Subacute sclerosing panencephalitis (See Encephalitis)
Switzerland
PKU in, 159
Syndrome, new (See also specific syndrome)
cardiofacial disorder as, 240
fucosidosis as, 160
glucose-galactose malabsorption as, 170, 171
propionicacidemia, case report, 168
of pupillotonia hyporeflexia and segmental hypohidrosis, 245
tricho-rhino-phalangeal malformations as, 238

Tay-Sachs' disease (See Lipoidosis, cerebral)
Teacher
of deaf MRs, qualifications of, 698
in spec ed, 701, 702, 704
adult MR adjustment and, 528
behavior modification techniques for, 680
in-service training for, 703
summer graduate practicum for, 700
turn-over of, factors in, 705
Teratology (See also Abortion; Infant)
of halothane, 348
human, 344
research on, 341
fr virus, 99
Testing (See also specific area of)
for adoption, 424
neurological, special techniques for, 38
neurophysiological in BI, 425
psychological, 422, 423
psychosis in MR children, 267
validity, 431
Tests/Developmental & intelligence
Bender Visual-Motor Gestalt Test, 430
Gibson Spiral Maze, 426
Hamburg-Wechsler-Intelligence Test for Children (HAWIK), 429
Kent Emergency Scale, 427
Stanford-Binet Intelligence Test, 421
Wechsler Adult Intelligence Scale, 421, 428
Wechsler Intelligence Scale for Children, 421, 430
Tests/Language
Stroop Test, 401
Tests/Metabolic (See specific disorders)
Tests/Personality
KaRo Test, 433
Minnesota Multiphasic Personality Inventory, 409
Rorschach Ink-Blot Test, 433
Tests/Social
Cain-Levine Social Competency Scale, 438
Residential Development Check List, 438
Vineland Social Maturity Scale, 438
Tests/Vocational
for sheltered workshop employees, 562
Theory
short-term memory, review of, 368
Therapy (See under specific area)
Thyroid gland
auto-antibodies to, in Down's syndrome, 311
function, in Down's syndrome, 312
Toilet training (See Adjustment/personal-social; Behavior; Learning)
Toxicity (See Poisoning)
Trace elements (See specific elements)
Transfusion
blood, in accidential Rh isoimmunization, 107
exchange,
in fetus for Rh incompatibility, 110, 111
complications of, 112, 114
indications for, in ABO hemolytic disease, 119
for jaundice in hypothyroidism, 201
for newborn depression fr maternal anesthesia, 142
in newborn, for Rh incompatibility, complications of, 113
Transportation
community programs for MR, 611
Tricho-rhino-phalangeal syndrome
w/ MR, case report, 238
Tryptophan
metabolism in tuberous sclerosis, 208
Tuberous sclerosis (See Sclerosis)
Tumors (See also specific headings)
brain, radiation therapy for, 209
gonadoblastoma, in mosaicism 45,XY/45,X, 318
Wilm's, in trisomy 18, 292
Turner's syndrome
familial transmission of, case study, 320
intelligence and, 362
Twins
congenital malformation discordancy in monozygotic, 342

Umbilical cord
arteries of, congenital anomalies and, 246
Union of Soviet Socialist Republics
MR in,
bibliography on, 33
history of, 31
psychology of, 32
United States
community program continuum in, 597
research on biological factors in MR in, 48
residential care census data fr Western, 628
spec ed programs in, 588, 589
United States Health, Education, & Welfare Department
activities of, 28

Uridine diphosphoglucose-4-epimerase
metabolism in galactosemia, 192
Urine
estriol in, in prolonged pregnancy, 63

Vaccination
for measles, effectiveness of
Edmonston vaccine, 82
for measles, mumps, and rubella,
combined vaccine effectiveness, 80
new vaccines for, 81
for rubella,
target groups for, 75
vaccine effectiveness in, 79
for smallpox, complications of, 86
Van Bogaert's disease (See
Leukoencephalitis)
Virus (See also Rubella)
chickenpox (varicella), pneumonia in
pregnancy, 85
cytomegalo-,
inclusion disease fr, in infant, 66, 67
in pregnancy, 68
echo 9, meningoencephalitis fr,
isolation fr cerebrospinal fluid in,
90
encephalitis and neurological disorders
fr, 102
Herpes simplex,
CNS malformation fr, 88
encephalitis fr, idoxuridine in
treatment of, 100
in newborn, idoxuridine treatment of
systemic infection w/, 87
infections,
in etiology of autoimmune
demyelinating diseases, 105
in pregnancy, congenital malformation
and, 103, 104
measles,
in etiology of subacute sclerosing
panencephalitis, 83
vaccine for, effectiveness of
Edmonston, 82
measles and mumps, vaccines for,
effectiveness of, 81
measles, mumps, and rubella, combined
vaccine for, 80
mumps, encephalitis fr, in Israel, 84
slow, in neurological disorders, 101
smallpox (vaccinia), vaccination for,
complications in, 86
teratogenesis fr, 99
Vision (See Eye)
Vitamin
B, metabolism in ep and neurological
disorders, folic acid in relation
to, 283
Vocational rehabilitation (See
Rehabilitation, vocational)
Volunteer program (See Community program)

Waardenburg's syndrome
w/ hypertelorism, 233
Weight (See Development; Infant)
Welfare programs (See Community program;
Protective services)
West Germany (See Germany)
Wisconsin
community programs for MR in rural
areas of, 616

Xeroderma pigmentosum
clinical aspects and basic defect
in, 262
X-ray (See Radiography)

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